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**REMEDATION SYSTEM EVALUATION REPORT**  
**OCTOBER THROUGH DECEMBER 2006**  
**FORMER GENERAL MOTORS CORPORATION**  
**ALLISON GAS TURBINE DIVISION, PLANT 10**  
**700 NORTH OLIN AVENUE**  
**INDIANAPOLIS, INDIANA**  
**IDEM VRP #6991004**  
**KERAMIDA PROJECT NO. 2829E**

Submitted to:

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT**  
Ms. Erin Britain, Project Manager  
Voluntary Remediation Program

IDEM Office of Land Quality - Fileroom State Office of Land Quality  
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Submitted for:

**GENUINE PARTS COMPANY**  
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DEPARTMENT OF  
ENVIRONMENTAL MANAGEMENT  
OFFICE OF LAND QUALITY

February 19, 2007

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Submitted to:

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT**  
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February 19, 2007

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## EXECUTIVE SUMMARY

KERAMIDA Environmental, Inc. (KERAMIDA) was contracted by the Genuine Parts Company to design and implement remediation to mitigate groundwater contamination at the former General Motors Corporation, Allison Gas Turbine Division, Plant 10 (Site) located at 700 North Olin Avenue, Indianapolis, Indiana. This report documents information collected during remediation activities from October through December 2006 and evaluates remediation performance.

The East System was shut down on January 30, 2006, based on four consecutive quarters of groundwater volatile organic compound (VOC) concentrations below Indiana VRP Tier II Non-Residential Cleanup Goals. Groundwater VOC concentrations, for the fourth quarter since the system was shut down, remained below their respective Indiana VRP Tier II Non-Residential Cleanup Goals.

The Northwest System was shut down and its vacuum was re-directed to the Southwest System on December 30, 2003, because the historical data for VOCs were below Cleanup Goals and the Southwest System needed more vacuum. On August 29, 2006, however, redirection ended when extraction wells, sparging points, monitoring wells MW-132, 147A and 148 and process piping associated with the Northwest System were abandoned and removed as soil removal activities were conducted in this area. A report detailing the soil removal activities will be submitted under a separate cover. Monitoring wells MW-132R, 147AR and 148R were subsequently installed and sampled following excavation activities. Concentrations of VOCs in groundwater, except for vinyl chloride in MW-148R, remained below Indiana VRP Tier II Non-Residential Cleanup Goals for the fifteenth consecutive quarter.

The Southwest System has been effective as shown by performance data, vapor recovery, and the reduction of groundwater VOC concentrations. The system's components are performing as designed. An additional 2.04 pounds of VOC vapors have been recovered, for a total of 129.84 pounds. Currently, all groundwater VOC concentrations are below the Indiana VRP Tier II Non-Residential Cleanup Goals for the sixth consecutive quarter. The Southwest System will continue to operate to remediate VOC-impacted groundwater.



The East Off-Site Area Bioremediation System has been effective based on three factors. First, the redox potential has dropped because of enhanced biological activity. Second, the trichloroethene (TCE) concentration decreased exponentially in IW-1 and MW-163. Third, the concentration of cis-1,2-dichloroethene (cDCE) increased in IW-1 and MW-163.

Quarterly on and off-Site groundwater monitoring occurred in December 2006/January 2007. Both the shallow and deep groundwater continues to flow toward the south. All groundwater concentrations are within historical values, except for total chromium and lead in MW-133R, MW-145, MW-148R and MW-152.

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## ATTACHMENTS

1. October through December 2006 - Operation & Maintenance Logs
2. January 2007 - Operational Data Log (Performance Data)
3. October through December 2006 - Vapor Analytical Reports and Discharge Calculations
4. October 2006 - Phytoremediation System Inspection Checklist
5. November, December 2006 and January 2007 - Groundwater Sample Information Sheets
6. November, December 2006 and January 2007 - Groundwater Analytical Reports

**REMEDATION SYSTEM EVALUATION REPORT  
JULY THROUGH SEPTEMBER 2006**

**FORMER GENERAL MOTORS CORPORATION  
ALLISON GAS TURBINE DIVISION, PLANT 10**

**INDIANAPOLIS, INDIANA**

**IDEM VRP #6991004**

**KERAMIDA PROJECT NO. 2829E**

**1.0 INTRODUCTION**

KERAMIDA Environmental, Inc. (KERAMIDA) was contracted by the Genuine Parts Company (Genuine Parts) to design and implement remediation to mitigate identified groundwater contamination at the former General Motors Corporation, Allison Gas Turbine Division (AGT) Plant 10 in Indianapolis, Indiana (Site). Regulatory closure of the Site is being administered through the Indiana Department of Environmental Management (IDEM) Voluntary Remediation Program (VRP). The purpose of this report is to evaluate the progress of the implemented Final Remediation Work Plan (Final RWP) at the Site as modified/approved in the IDEM's Modified RWP Approval letter, dated March 22, 2005. This report summarizes the following information:

- Site Background
- Contaminants of concern and cleanup criteria
- Design and installation of the remediation system
- Remediation system monitoring plan
- Implementation and monitoring of the remediation system, including general operation & maintenance and performance data, operational parameters, evaluation and recommendations/future activities for each remediation system.

**2.0 SITE BACKGROUND**

The subject property is located at 700 North Olin Avenue, Indianapolis, Marion County, Indiana (see Figure 1). The property is the former Site of the General Motors Corporation, Allison Gas Turbine Division (AGT) Plant 10. Between 1956 and 1973, BHT Corporation (BHT) operated the facility for carburetor and brake re-manufacturing. General Motors purchased the property from BHT in 1973 and used the facility for warehousing obsolete machines, tooling, and fixtures until the mid-1980s, at which time the property became part of the AGT Division. BHT became part of Genuine Parts, through acquisition and merger, subsequent to the sale of the property to



General Motors. AGT continued to use the facility for warehousing until December 1993 when the property was sold to the Allison Engine Company (AEC). AEC sold the facility to Associated Properties, Inc. in 1998. Associated Properties, Inc. sold the facility to American Art Clay Company, Inc. in 2002, who is the current property owner. Maps showing salient Site features are presented in Figure 2 – Site Map and Figure 3 - Expanded Site Map.

### 3.0 CONTAMINANTS OF CONCERN AND CLEANUP CRITERIA

Identified contaminants of concern (COC) requiring in-situ remediation include volatile organic compounds (VOC) such as trichloroethene (TCE) and daughter products. Polynuclear aromatic hydrocarbons (PAHs) and three metals (cadmium, total chromium, and lead) were other COC but have been addressed by previously completed remediation activities. Indiana VRP Tier II Non-residential Cleanup Goals for on-Site soil and groundwater and Indiana VRP Tier II Residential Cleanup Goals for off-Site soil and groundwater were used as screening levels to complete Site investigation activities. Two primary source areas of contamination were identified on-Site and are referred to as the eastern source area and the western source area. A small anomalous area of TCE occurrence was also noted in groundwater to the east of the Site across Olin Avenue. A complete summary of on- and off-Site investigation activities is documented in Section 4.0 of the Final RWP dated and submitted to the IDEM on August 16, 2004.

Using the results of the human health and ecological screenings, documented in Sections 4.6 and 5.0 of the Final RWP, the Indiana VRP Tier II Non-Residential Cleanup Goals for subsurface soil and groundwater were selected as the cleanup criteria for Site soils and groundwater (Section 6.0 of Final RWP). Per the IDEM Modified RWP Approval letter, the Indiana VRP Tier II Residential Cleanup Goals are the current cleanup criteria for VOC COC in off-Site groundwater attributable to the Site. Because potable water is provided to the area by municipal water supply and the Site vicinity is located in a Marion County No Well Zone which restricts the installation of water supply wells, the potential for exposure to impacted groundwater is limited.

Off-Site VOC COC reduction will be monitored for a period of seven years. Should the off-Site concentrations of the VOC COC attributable to the Site be reduced to their respective Indiana VRP Tier II Residential Cleanup Goals during the seven year monitoring period, then remediation will be considered complete following four quarters of confirmation sampling. During the seven year monitoring period, Genuine Parts will work on the establishment of further



institutional control(s) (IC) acceptable to the IDEM that are more restrictive than the current Marion County No Well Zone. If further IC(s) acceptable to the IDEM are secured prior to the end of the seven year monitoring period, then monitoring will continue during that period to confirm an Indiana VRP Tier III Closure using plume stability. However, if off-Site groundwater cleanup below the Indiana VRP Tier II Residential Cleanup Goals is not achieved or more restrictive IC(s) acceptable to the IDEM cannot be secured, all during the seven year monitoring period, then an alternate remedy will be identified and implemented.

#### 4.0 REMEDIATION SYSTEM OVERVIEW

Overall remediation consists of source area Air Sparge/Soil Vapor Extraction (AS/SVE) Systems and a Phytoremediation System. The AS/SVE Systems were installed to address groundwater VOC contamination in the eastern and western source areas. The AS/SVE Systems were installed from May 2000 through July 2001 and became operational in July 2001. The Phytoremediation System was installed along the entire southern property boundary of the Site in September 2000 to further mitigate groundwater VOC contamination. A complete summary of the selection, design, and installation of the remediation system was documented in Section 8.2 of the Final RWP. The Final RWP also identified a plan to extend the western source area AS/SVE System to remediate a VOC soil "hot spot." Expansion included the installation of the four nested SVE wells, associated subsurface piping, and their connection to the AS/SVE System during the period of August 25 through September 18, 2003. The expansion is documented in Section 8.3 of the Final RWP.

As a protective measure, the east off-Site TCE contaminated area is being remediated by reductive dechlorination to health protective levels. Reductive dechlorination is enhancing the naturally occurring processes of degradation. Natural reductive dechlorination takes place in most subsurface systems due to the presence of microbes, which break down the contaminants to harmless constituents. The goal of reductive dechlorination is to enhance the natural processes by the addition of a food source for the microbes. This food source usually consists of a substance with high carbon content. Reductive dechlorination is ideally suited for sites where chlorinated solvents are present and where field indications suggest that natural attenuation is already taking place. A corn syrup injection system was installed in March 2004 after a bench-scale "microcosm" test was completed determining appropriate dosing concentrations. A full



description of the reductive dechlorination process, injection system installation, and the microcosm study is documented in Section 8.2 of the Final RWP.

#### 4.1 AS / SVE SYSTEM

AS/SVE Systems were designed and constructed in phases to aggressively reduce the two separate VOC groundwater plumes on-Site, control off-Site migration, and reduce concentrations in the VOC soil "hot spot." The AS/SVE System consists of a total of 44 air sparging and 35 soil vapor extraction wells. The AS/SVE System is separated into two western treatment units and one eastern treatment unit. Each treatment unit is serviced by separate equipment. The equipment for the two western treatment units is housed in one enclosure/trailer. The equipment for the eastern treatment unit is housed in a separate enclosure/trailer.

The northern unit of the western SVE/AS System (Northwest System) is comprised of 7 SVE and 10 AS wells. The southern unit of the western SVE/AS System (Southwest System) is comprised of 18 SVE wells and 19 AS wells. The eastern treatment unit (East System) is comprised of 10 SVE wells and 15 AS wells. The following table summarizes the AS/SVE System and its associated components:

Components	Northwest System	Southwest System	East System
SVE Wells	SVE - 1 through 7	SVE-8 through 17 & 28s/d, 29s/d, 31s/d, and 32s/d	SVE-18 through 27
ASV's and Corresponding AS Wells	ASV-1 (AS-1 to 4) ASV-2 (AS-5 to 7) ASV-3 (AS-8 to 10)	ASV-4 (AS-11 to 14) ASV-5 (AS-15 to 19) ASV-6 (AS-20 to 24) ASV-7 (AS-25 to 29)	ASV-8 (AS-30 to 35) ASV-9 (AS-36 to 40) ASV-10 (AS-41 to 44)

ASV = Air Sparging Vault

A layout of the AS/SVE System can be found on Figure 4 - Remediation System Layout with Utilities and Figure 5 - Supplemental Remediation System Layout in "Hot Spot."

#### 4.2 PHYTOREMEDIATION SYSTEM

Phytoremediation is the use of various plants to remediate environmental media. Phytoremediation has been proven to be effective in the remediation of soil, sediment, groundwater, and surface water contaminated with organic and inorganic chemicals.

Phytoremediation applications clean up contaminated media by degrading, extracting, containing, and/or immobilizing the contaminants. In September 2000, phytoremediation was incorporated as part of the Remediation System. It is composed of two staggered rows of hybrid poplar trees, on 5-foot centers, that line the entire southern property boundary. The purpose is to further control the off-Site migration of groundwater COC. Spacing between the rows is a minimum of 8 feet. A layout of the phytoremediation design in place along the southern property boundary can be found on Figure 4 - Remediation System Layout with Utilities.

#### **4.3 EAST OFF-SITE AREA BIOREMEDIATION SYSTEM**

The east off-Site TCE contaminated area is being remediated by reductive dechlorination. The corn syrup injection system consists of two permanent injection wells, IW-1 and IW-2 installed: one near MW-163, and one in the right of way on the west side of Olin Avenue, on the centerline of Walnut Street and ten temporary injection points, all located within the TCE contaminated area. MW-173 was installed approximately 30 feet southeast of existing MW-163 to monitor the treatment process. Existing MW-151 and 156 are used as downgradient sentry wells to monitor the extent of the plume. Permanent well locations are depicted on Figure 3 - Expanded Site Map.

### **5.0 REMEDIATION SYSTEM MONITORING PLAN**

A brief summary of the remediation system monitoring plan is described in this section. A complete summary of the remediation system monitoring plan is documented in Section 8.4 of the Final RWP. Also, please refer to Section 9.0 Operation and Maintenance Plan and the Quality Assurance Project Plan found as Attachment 7 in the Final RWP for complete details.

#### **5.1 AS/SVE SYSTEMS**

Weekly Site visits have been made to monitor the AS/SVE Systems operation, to collect performance indicators, and to conduct routine maintenance. Monthly effluent vapor samples have been collected from each SVE blower and submitted for laboratory analysis for VOCs. A quarterly effluent vapor sample was collected from each SVE blower and analyzed for permanent gases.

The AS/SVE Systems began operating in July 2001. A description of these systems and monitoring details are provided in Section 6.0 Implementation and Monitoring of Remediation System of this report.



## 5.2 PHYTOREMEDIATION SYSTEM

Monthly inspections are conducted during the growing season and quarterly inspections are conducted throughout the dormant period of each year. The growing season for the Site is from April through October. If any trees show signs of distress, disease, or other abnormalities, corrective actions are taken. Inspection details are provided in Section 6.0 Implementation and Monitoring of Remediation System of this report.

Leaf tissue and transpiration gas sampling and analysis for VOCs, from three randomly selected trees, are to be conducted in June and September of each year to coincide with the early and late stages of the growing season. The results of tissue and gas sampling and analysis are used to evaluate the physical and chemical mechanisms at work in the remediation system, the potential for risk to ecological receptors from exposure to COC-containing plant tissues, and potential COC concentrations released to ambient air in the remediation area. Monitoring details are provided in Section 6.0 Implementation and Monitoring of Remediation System of this report.

## 5.3 SELECTIVE ON-SITE GROUNDWATER MONITORING

The fifteenth round of quarterly on-Site groundwater monitoring was conducted in December 2006 from seven monitoring wells: MW-10-1R, 132R, 133R, 147AR, 148R, 150 and 153. Samples were analyzed in the field for pH, dissolved oxygen, temperature, specific conductivity, and reduction/oxidation (redox) potential. Samples collected for laboratory analysis were analyzed for VOCs at Data Quality Objective (DQO) Level II. The analytical results will aid in the evaluation of progress being made by the remediation system. Monitoring details are provided in Section 6.0 Implementation and Monitoring of Remediation System of this report. See Figure 6 – Groundwater Monitoring Plan for locations of monitoring wells.

Once the analytical results for all seven monitoring wells from four consecutive quarterly groundwater sampling events display asymptotic behavior near or drops below the Indiana VRRP Tier II Non-Residential Closure Goals for VOCs, the remediation system will be shut down and selective monitoring will end.

#### 5.4 ON-SITE GROUNDWATER MONITORING

The fourth round of annual on-Site groundwater monitoring was conducted in December 2006 from 11 monitoring wells: MW-10-1R, 132R, 133R 135, 145, 146, 148R, 150, 152, 153 and 154. Samples were analyzed in the field for pH, dissolved oxygen, temperature, specific conductivity, and redox potential. Samples collected for laboratory analysis were analyzed for VOCs, PAHs, cadmium, total chromium and lead at DQO Level II. The analytical results will be used to evaluate the status of the on-Site attainment of the Indiana VRP Tier II Non-Residential Closure Goals for VOCs, PAHs, cadmium, total chromium, and lead. Monitoring details are provided in Section 6.0 Implementation and Monitoring of Remediation System of this report. See Figure 6 - Groundwater Monitoring Plan for locations of monitoring wells.

Once the remediation system has been shut down as described in Section 5.3, sampling will change from annual to quarterly events and samples will be analyzed at a DQO Level IV for groundwater confirmation purposes. Once the analytical results in all 11 monitoring wells from four consecutive quarterly groundwater sampling events display asymptotic behavior near or drops below the Indiana VRP Tier II Non-Residential Closure Goals for VOCs, PAHs, cadmium, total chromium and lead, on-Site remedial objectives will be attained and the IDEM will be petitioned for on-Site closure.

#### 5.5 ON AND OFF-SITE GROUNDWATER MONITORING

The thirteenth round of quarterly on and off-Site groundwater monitoring was conducted in December 2006/January 2007 from 22 monitoring wells: MW-10-1R, 132R, 146, 148R, 150, 151, 152, 153, 156, 157, 160, 161, 164, 165S, 165D, 166S, 166D, 167S, 167D, 169S, 169D, and 302. Samples were analyzed in the field for pH, dissolved oxygen, temperature, specific conductivity, and redox potential. Samples collected for laboratory analysis were analyzed for VOC at DQO Level IV. The analytical results will aid in the evaluation of off-Site natural attenuation and plume stability. Monitoring details are provided in Section 6.0 Implementation and Monitoring of Remediation System of this report. See Figure 6 - Groundwater Monitoring Plan for locations of monitoring wells.

Off-Site VOC COC concentrations are being monitored quarterly for a seven year period. Should the off-Site concentrations of the VOC COC attributable to the Site be reduced to their respective Indiana VRP Tier II Residential Cleanup Goals during the seven year monitoring period, then remediation will be considered complete following four quarters of confirmation



sampling. During the seven year monitoring period, Genuine Parts will work on the establishment of further institutional control(s) (IC) acceptable to the IDEM that are more restrictive than the current Marion County No Well Zone. If further IC(s) acceptable to the IDEM are secured prior to the end of the seven year monitoring period, then monitoring will continue during that period to confirm an Indiana VRP Tier III Closure using plume stability. However, if off-Site groundwater cleanup below the Indiana VRP Tier II Residential Cleanup Goals is not achieved or more restrictive IC(s) acceptable to the IDEM cannot be secured, all during the seven year monitoring period, then an alternate remedy will be identified and implemented.

## **5.6 EAST OFF-SITE AREA BIOREMEDIATION GROUNDWATER MONITORING**

The fourteenth and fifteenth rounds of east off-Site area bioremediation groundwater monitoring were conducted in November (following third injection) and December 2006 (normally scheduled) from six monitoring wells: IW-1, IW-2, MW-151, 156, 163, and MW-173. Samples were analyzed in the field for pH, dissolved oxygen, temperature, specific conductivity, and redox potential. Samples collected for laboratory analysis were analyzed for VOCs and total organic carbon (TOC) by EPA Method 415.1 at DQO Level II. Monitoring details are provided in Section 6.0 Implementation and Monitoring of Remediation System of this report. See Figure 6 - Groundwater Monitoring Plan for locations of monitoring wells. The analytical results from the groundwater sampling from these wells will be used to evaluate the progress of the east off-Site area bioremediation system.

## **6.0 IMPLEMENTATION AND MONITORING OF REMEDIATION SYSTEM**

The project goal is to ensure continued operation of the groundwater remediation system and to maintain and operate it in the most efficient manner possible.

### **6.1 AS/SVE SYSTEMS**

Operational parameters and performance data, maintenance activities, operational evaluation, and recommendations/future activities for each on-Site source area of the AS/SVE System are detailed below. O&M Logs from October through December 2006 are provided in Attachment 1 and Operational Logs with performance data are provided in Attachment 2.

### 6.1.1 East System

As discussed in Section 6.1.1 of the Remediation System Evaluation Report, October through December 2005, dated February 14, 2006, KERAMIDA shut down the East System on January 30, 2006. This was based on four consecutive quarters of groundwater VOC concentrations below Indiana VRP Tier II Non-Residential Cleanup Goals. Monitoring of groundwater VOC concentrations was conducted in December 2006/January 2007. As discussed in Section 6.4.1 East System and Associated Monitoring Wells, for the fourth quarter, following the shut down of active remediation, all groundwater VOC concentrations are below Indiana VRP Tier II Non-Residential Cleanup Goals.

KERAMIDA will continue to conduct quarterly groundwater monitoring activities as described in Section 5.3 Selective On-Site Groundwater Monitoring.

### 6.1.2 Northwest System

As discussed in Section 6.1.2 of the Remediation System Evaluation Report, January through March 2004, dated June 29, 2004, the Northwest System was shut down in late December 2003. Prior to the shut down, historical analytical results of the monitoring wells associated with the Northwest System were reviewed. For the third consecutive quarter, all concentrations were below the Indiana VRP Tier II Non-Residential Cleanup Goals. Because of the trend at the Northwest System and the need to continually operate the Southwest System, the Northwest System was shut down and vacuum application to its SVE wells was then re-directed through the Southwest System SVE blower on December 29, 2003. This configuration was operational from the re-starting of the Southwest System on December 30, 2003 through August 29, 2006.

Operation of the Northwest System SVE wells through the Southwest System SVE blower ended when extraction wells SVE-1 through 7, sparging points AS-1 through 7, monitoring wells MW-132, 147A and 148 and process piping associated with the Northwest System were abandoned and removed as excavation activities were conducted in this area. A report detailing excavation activities will be submitted under a separate cover. Replacement monitoring wells MW-132R, 147AR and 148R were installed and developed following excavation activities on October 10 and 11, 2006.



As discussed in Section 6.4.2 Northwest System and Associated Monitoring Wells, for the fifteenth consecutive quarter, groundwater VOC concentrations are below the Indiana VRP Tier II Non-Residential Cleanup Goals, except for vinyl chloride in MW-132R and MW-148R.

KERAMIDA will continue to conduct quarterly groundwater monitoring activities as described in Section 5.3 Selective On-Site Groundwater Monitoring.

### 6.1.3 Southwest System

#### Operation and Performance

The Southwest System began operating in July 2001 and through January 4, 2007, the SVE blower has operated for 36,268 hours and the AC unit has operated for 33,560 hours. The system operated 65% of the time from October through December 2006.

Various operational and performance data were collected during these O&M visits. The data collected were documented on the O&M and Operational Logs. Tasks completed during the O&M visits are as follows:

- Weekly operational measurements from AS and SVE systems.
- Monthly collection of effluent vapor samples for VOC analysis.
- Adjustments to the applied vacuum and pressures at the vapor extraction and air sparging points were completed to optimize performance.
- A performance data collection event (January 4, 2007) to collect observed, applied, and induced vacuum and pressures, groundwater mounding, groundwater dissolved oxygen (DO) and redox potential levels. These performance data were collected at various vapor extraction wells, air sparging points, and monitoring points.
- Quarterly collection of an effluent vapor sample for permanent gases analysis was completed on December 18, 2006.
- Quarterly collection of groundwater samples for VOC analysis from monitoring wells, MW-133R and 153 was completed in December 2006.

The data from the 2001 and 2002 operational and performance data collection events were used to determine optimal operating conditions and associated system performance for the Southwest System. The design operating conditions, and associated system performance were determined

by pilot-scale testing; therefore, optimal operating conditions and performance were established based on the evaluation of actual full-scale system conditions and performance. The data collected during the current monitoring period were compared to both the design and optimal operating conditions and performance. The following table summarizes design, optimal and current operating conditions and associated system performance information.

Parameter	Design Conditions and Performance	Optimal Conditions and Performance	Current Conditions and Performance
SVE Wells	45 inches of H <sub>2</sub> O vacuum/well 28 foot Radius of Influence (ROI)	15-20 inches of H <sub>2</sub> O 25 foot ROI	10 inches of H <sub>2</sub> O 25 foot ROI
SVE Blower	70 inches of H <sub>2</sub> O vacuum at inlet 1,000cfm of influent air flow	35-40 inches of H <sub>2</sub> O 200-250cfm	13-18 inches of H <sub>2</sub> O 1,000cfm
AS Wells	10psi at 10cfm/well 20 foot ROI	5psi at 5cfm/well 20-foot ROI	6psi at 4-5cfm/well 20 foot ROI
Air Compressor	100psi at outlet (40psi at regulator)	100psi at outlet (25-30psi at regulator)	105psi at outlet (33-40psi at regulator)

A layout of each AS/SVE System with current AS and SVE ROI information is provided in Figure 4 - Remediation System Layout with Utilities.

Southwest System vapor discharge rates, for each vapor sampling event, were determined by using vapor sampling analytical data and flow measurements taken from the effluent stack. Time periods were determined based on the occurrence of vapor sampling events with associated SVE operational hours. Using these data, KERAMIDA estimates 2.04 pounds of VOC vapors have been removed from the subsurface by the Southwest System during the current monitoring period. Copies of VOC vapor discharge calculations and analytical reports are provided in Attachment 3.

On January 4, 2007, in addition to the collection of vapor samples, a permanent gases sample was collected from the system's effluent stack for analysis. Analytical results indicate oxygen, nitrogen, and carbon dioxide at concentrations of 19.89%, 76.63%, and 0.04% by volume, respectively. Methane was not detected above the 0.03% method detection limit. A copy of the analytical report is provided in Attachment 3.



As discussed in Section 4.0 Remediation System Overview, the Final RWP also identified a plan to extend the western source area AS/SVE System to remediate a VOC soil "hot spot." Expansion included the installation of the four nested SVE wells, associated subsurface piping, and their connection to the AS/SVE System during the period of August 25 through September 18, 2003. This configuration was operational through August 29, 2006. Operation through these four nested SVE wells ended when they were abandoned and removed as excavation activities were conducted in this area. A report detailing excavation activities will be submitted under a separate cover.

#### Maintenance Activities

In mid to late October, mid-November and late-December 2006, the system went down due to high water caused by numerous large rain events. Following each high water shut down event, the SVE blower knock-out was drained and the SVE blower and/or SVE wells were adjusted to minimize water production. Condensate within the SVE blower process lines had to be removed and the system restarted.

On December 1, 2006, during a normally scheduled O&M visit, KERAMIDA found that the control panels circuit breaker had tripped shutting down the system. The system was restarted and investigated for the shut down reason and none could be determined. On January 4, 2007, the system went down again and no cause could be determined. If this issue persists then, KERAMIDA will replace the circuit breaker.

On December 18, 2006, during a normally scheduled O&M visit, KERAMIDA found that the air compressor unit was not operating. It was discovered that the air compressors door jam connection hardware was broken. The door jam connection hardware was subsequently replaced and the system restarted on December 21, 2006.

#### Evaluation

Differences between the designed, optimal, and actual conditions and performance of the SVE portion of the Southwest System are evident. The design calls for an applied vacuum per well of 45 inches of H<sub>2</sub>O column to induce a ROI of approximately 28 feet. Optimal conditions indicate a significantly lower applied vacuum/well of 15-20 inches of H<sub>2</sub>O column, resulting in an ROI of approximately 25 feet, while current conditions result in the same ROI using an applied vacuum of approximately 10-inches of H<sub>2</sub>O column. The lower applied vacuum/well under current



conditions when compared to the optimal conditions is partly attributable to the Southwest System SVE blower applying vacuum to the Northwest System SVE wells. The spacing between SVE wells is approximately 30-40 feet, thus providing an overlap of actual ROIs. The SVE blower is operating at a significantly lower vacuum and flow than designed; this is partially a result of SVE blower throttling, subsurface conditions, and the Southwest System SVE blower is also applying vacuum to the Northwest System SVE wells.

Differences also are evident between the designed, optimal, and actual conditions and performance of the AS portion of the Southwest System. The design calls for an injection of 10 cubic feet per minute (cfm) of air at pressure of 10 pounds per square inch (psi) to achieve a ROI of approximately 20 feet. Optimal conditions indicate an injection of 5 cfm at 5 psi also can achieve an ROI of approximately 20 feet. However, current conditions indicate a ROI of approximately 20 feet is achieved at an injection rate of 4-5 cfm at 6 psi. The spacing between AS wells is approximately 25-30 feet, providing an overlap of actual ROIs. The AC unit is operating as designed; however, because of lower injection rates, the pressure has been set lower.

The purpose of the remediation system is the treatment of VOC-impacted groundwater. Treatment can be accomplished in two ways: (1) through the in-situ stripping of the volatile compounds and subsequent removal and; (2) through the stimulation of bioactivity by the addition of oxygen to the subsurface. Vapor discharge data and calculations indicate that 2.04 pounds of VOC vapors have been removed from the subsurface by the Southwest System during the current monitoring period with a total of 129.84 pounds of VOC vapors removed since initiation in July 2001. This low vapor recovery was expected because of the low dissolved VOC concentrations in the groundwater. The contribution of bioactivity to the groundwater remediation effort is more difficult to quantify. Analytical results indicated concentrations of carbon dioxide, oxygen, nitrogen, and methane present in the system's effluent at levels close to normal atmospheric air. This indicates that no appreciable bioactivity is occurring in the subsurface.

Monitoring of groundwater VOC concentrations was conducted in December 2006/January 2007. The reduction of these concentrations is a direct means of evaluating remediation progress. As discussed in Section 6.4.3 Southwest System and Associated Monitoring Wells, for the sixth consecutive quarter, all groundwater VOC concentrations are below Indiana VRP Tier II Non-Residential Cleanup Goals.



### Recommendations

KERAMIDA recommends the continued operation of the Southwest System to remediate VOC-impacted groundwater.

#### **6.1.4 Liquid Waste Management**

Liquid wastes were generated by the drainage of condensate from the vapor extraction blower knock-outs and during groundwater sampling. A 400-gallon poly tank was used to store these liquids. Liquid Waste Removal, Inc. of Indianapolis, Indiana, removes and hauls condensate and groundwater generated for treatment/disposal at Perma-Fix located in Dayton, Ohio, in accordance with applicable federal, state, and local regulations. From October through December 2006, additional condensate waters were generated and disposed. A total of 5,865-gallons of condensate waters has been generated and disposed since start-up in July 2001.

#### **6.2 PHYTOREMEDIATION SYSTEM**

KERAMIDA continued conducting inspections during the current monitoring period. An inspection was conducted on October 23, 2006 and indicated the need for replanting 30-40 poplar trees. KERAMIDA will replant these trees in the Spring 2007 and any other trees that die over Winter 2006/2007. A copy of the inspection is found as Attachment 4.

#### **6.3 EAST OFF-SITE AREA BIOREMEDIATION SYSTEM**

Three full-scale injections have been implemented. The first was conducted from July 19 through 21, 2004, the second on October 19, 2004, and the third on October 24 & 25, 2006. Prior to and following these injection events, groundwater monitoring was conducted from permanent injection wells IW-1 and 2, and monitoring wells MW-151, 156, 163, and 173.

In July 2004, approximately 1,800 gallons of tap water with 1,000 milligrams per liter (mg/L) TOC from corn syrup were injected into the subsurface via injection wells IW-1 and 2 and 10 push-probe points. This volume and concentration were chosen as sufficient to achieve the target concentration of corn syrup across the entire treatment area of 120 feet by 30 feet. The injections were performed under minimal pressures (<5 pounds per square inch, psi).

In October 2004, based on results of groundwater monitoring data (July 2004 injection event), approximately 1,800 gallons of tap water with 10,000 mg/L TOC from corn syrup were injected into the subsurface via injection wells IW-1 and 2. This volume and concentration were chosen

to provide a longer retention time for the corn syrup in the remediation area. The injections were again carried out under minimal pressures (<5 psi).

Based on the results of the groundwater monitoring following the October 2004 injection event, reductive dechlorination of the chlorinated solvents initially proceeded at an accelerated rate, but recent data, as discussed in Section 6.7 East Off-Site Area Bioremediation Groundwater Monitoring of the Remediation System Evaluation Report, July through September 2006, dated December 20, 2006, bioremediation had slowed down.

Therefore, a third injection was completed from October 24 through 25, 2006. Approximately 1,800 gallons of tap water with 10,000 mg/L TOC from corn syrup were injected into the subsurface via injection wells IW-1 and 2. The injections were again carried out under minimal pressures (<5 psi).

#### **6.4 SELECTIVE ON-SITE GROUNDWATER MONITORING**

KERAMIDA conducted the quarterly collection of groundwater samples for field parameters and VOC analyses in December 2006/January 2007 from MW-10-1R, 132R, 133R, 147AR, 148R, 150 and 153. Groundwater samples were collected from these on-Site monitoring wells using low-flow sampling equipment. All analytical results were compared to their respective Indiana VRP Tier II Non-Residential Cleanup Goals. Field parameter data are documented on Groundwater Sample Information Sheets provided in Attachment 5. Historical and current groundwater elevations were tabulated and can be found in Table 1 – Water Level Data Summary. A copy of the current laboratory analytical report is provided in Attachment 6. Current and historical analytical results for each system and its associated monitoring wells are evaluated in the following sections.

##### **6.4.1 East System and Associated Monitoring Wells**

MW-150 and MW-10-1R are associated with the eastern impacted groundwater plume that the East System was designed to remediate. For the eighth consecutive quarter, all groundwater VOC concentrations are below the Indiana VRP Tier II Non-Residential Cleanup Goals. Current and historical analytical results were tabulated and can be found in Table 2a – Shallow Monitoring Well Groundwater Analytical Results for VOCs ( $\mu\text{g/L}$ ).



#### **6.4.2 Northwest System and Associated Monitoring Wells**

MW-132R, MW-147AR, and MW-148R are associated with the western impacted groundwater plume that the Northwest System is designed to remediate. For the fifteenth consecutive quarter, groundwater VOC concentrations are below the Indiana VRP Tier II Non-Residential Cleanup Goals, except for vinyl chloride in MW-148R. Current and historical analytical results were tabulated and can be found in Table 2a – Shallow Monitoring Well Groundwater Analytical Results for VOCs ( $\mu\text{g/L}$ ).

#### **6.4.3 Southwest System and Associated Monitoring Wells**

MW-133R and MW-153 are associated with the western impacted groundwater plume that the Southwest System is designed to remediate. For the sixth consecutive quarter, groundwater VOC concentrations are below the Indiana VRP Tier II Non-Residential Cleanup Goals. Current and historical analytical results were tabulated and can be found in Table 2a – Shallow Monitoring Well Groundwater Analytical Results for VOCs ( $\mu\text{g/L}$ ).

### **6.5 ON-SITE GROUNDWATER MONITORING**

KERAMIDA conducted the annual collection of groundwater samples for field parameters and VOCs, PAHs, cadmium, total chromium, and lead analyses in December 2006 from monitoring wells: MW-10-1R, 132R, 133R, 135, 145, 146, 148R, 150, 152, 153, and 154. Groundwater samples were collected from these on-Site monitoring wells using low flow sampling equipment. Field parameter data are documented on Groundwater Sample Information Sheets provided in Attachment 5. Historical and current groundwater elevations were tabulated and can be found in Table 1 – Water Level Data Summary. Current and historical analytical results were tabulated and can be found in Table 2a – Shallow Monitoring Well Groundwater Analytical Results for VOCs ( $\mu\text{g/L}$ ), Table 3 – Shallow Monitoring Well Groundwater Analytical Results for PAHs ( $\mu\text{g/L}$ ), and Table 4 – Shallow Monitoring Well Groundwater Analytical Results for Metals ( $\mu\text{g/L}$ ). A copy of the current laboratory analytical report is provided in Attachment 6.

All groundwater concentrations are within historical values, except for total chromium and lead in MW-133R, MW-145, MW-148R and MW-152.

## 6.6 ON AND OFF-SITE GROUNDWATER MONITORING

KERAMIDA conducted the quarterly collection of groundwater samples for field parameters and VOC analyses in December 2006/January 2007 from 22 monitoring wells: MW-10-1R, 132R, 146, 148R, 150, 151, 152, 153, 156, 157, 160, 161, 164, 165S, 165D, 166S, 166D, 167S, 167D, 169S, 169D, and 302. Groundwater samples were collected from these monitoring wells using low flow sampling equipment. All VOC concentrations are within historical values.

Field parameter data are documented on Groundwater Sample Information Sheets provided in Attachment 5. Historical and current groundwater elevations were tabulated and can be found in Table 1 - Water Level Data Summary. Current and historical analytical results were tabulated and can be found in Table 2a - Shallow Monitoring Well Groundwater Analytical Results for VOCs ( $\mu\text{g/L}$ ) and Table 2b - Deep Monitoring Well Groundwater Analytical Results for VOCs ( $\mu\text{g/L}$ ). A copy of the current laboratory analytical report is provided in Attachment 6.

Groundwater level data from the December 2006/January 2007 sampling event is included within Table 1 - Water Level Data Summary. Shallow and deep groundwater level data from the gauging event, indicate that groundwater was flowing in a southerly direction, as depicted on Figure 7 - Groundwater Potentiometric Surface Map - Shallow Wells, December 2006 and Figure 8 - Groundwater Potentiometric Surface Map - Deep Wells, December 2006.

## 6.7 EAST OFF-SITE AREA BIOREMEDIATION GROUNDWATER MONITORING

KERAMIDA conducted the collection of groundwater samples for field parameters and VOC and TOC analyses in November 2006 (following third injection) and December 2006 (normally scheduled) from six monitoring wells: IW-1, IW-2, MW-151, 156, 163, and MW-173. Groundwater samples were collected from these monitoring wells using low flow sampling equipment. Historical and current field parameter data were tabulated and can be found in Table 5 - East Off-Site Bioremediation Field Parameter and Select Groundwater Analytical Results. Current field parameter data was documented on Groundwater Sample Information Sheets provided in Attachment 5. Historical and current groundwater elevations were tabulated and can be found in Table 1 - Water Level Data Summary. Current and historical analytical results were tabulated and can be found in Table 2a - Shallow Monitoring Well Groundwater Analytical Results for VOCs ( $\mu\text{g/L}$ ), and Table 5 - East Off-Site Bioremediation Field Parameter and Select Groundwater Analytical Results. Copies of the current laboratory analytical reports are provided in Attachment 6.



The evidence that bioremediation of TCE is taking place can be seen in three factors. First, the redox potential has dropped. This is caused by biological activity and is necessary for reductive dechlorination to take place. Second, the TCE concentration decreased exponentially over time in IW-1 and MW-163. This exponential decay is indicative of biological activity. Third, the concentration of cDCE increased in IW-1 and MW-163. This is expected as TCE is reduced to cDCE.

## **7.0 USE OF REPORT**

This report has been prepared for the exclusive use of the Client and persons or organizations to whom the Client wishes to make this report available. This report and the findings, conclusions and recommendations contained herein shall not, in whole or in part, be disseminated or conveyed to any other party, or used by or relied upon by any other party, without the prior written consent of KERAMIDA.

## **8.0 LIMITATIONS**

This report was prepared in accordance with KERAMIDA contractual guidelines set forth for remediation services. KERAMIDA's professional opinions contained herein are based upon the operation, maintenance, and monitoring/sampling conducted by KERAMIDA personnel during the operation of the remediation system. No other warranty is given or implied by this report.

**Table 1**  
**Water Level Data Summary**  
**Former Central Motors Corporation**  
**Albion Gas Turbine Division, Plant 10**  
**Indianapolis, Indiana**  
**IRRM VBP 4400104**  
**KERAMIDA Project No. 2039E**

Monitoring Well ID	TOC Elevation <sup>(1)</sup> (feet sea)	Ground Elevation <sup>(1)</sup> (feet sea)	Screen Interval (feet deep)	Screen Depth (feet sea)	Date Gauged	DTW (feet)	GW Elevation (feet sea)
MW-10-1	714.04	N/A	7-17	707.04-697.04	07/14/95	14.07	699.97
					09/11/95	14.25	699.79
					02/05/97	12.74	701.79
					11/22/99	14.53	699.51
	713.71	712.30	7-17	706.71-696.71	02/28/00	14.37	699.67
					11/07/00	14.62	699.99
					07/24/01	14.40	699.11
					01/30/02	14.25	699.46
					07/19/02	13.45	700.26
					05/07/03	11.21	699.36
MW-10-1R	714.00	711.75	7-17	704.75-694.75	12/03/03	14.38	699.68
					03/03/04	14.40	699.60
					03/10/04	11.73	702.27
					08/02/04	14.31	699.69
					12/29/04	10.40	703.60
					03/16/05	14.26	699.74
					09/13/05	14.34	699.06
					09/21/05	15.35	698.65
					12/04/05	15.31	698.69
					01/29/06	14.50	699.50
					03/13/06	13.40	700.00
					06/12/06	14.50	699.50
					10/13/06	14.94	699.04
					12/20/06	14.43	699.57
MW-132	712.17	N/A	16-20	702.17-692.17	07/14/95	12.59	700.78
					09/11/95	11.49	700.68
					02/03/97	10.25	701.92
					02/26/97	11.17	701.00
	712.18	712.70	16-20	702.18-692.18	11/21/99	12.15	700.02
	712.22	712.37	16-20	702.22-692.22	02/28/00	10.76	701.41
					11/07/00	497	N/A
					07/24/01	11.72	700.50
					01/29/02	11.97	700.25
					07/22/02	11.98	700.24
					05/07/03	11.53	700.87
					12/03/03	11.72	700.50
					05/10/04	11.66	700.76
					06/02/04	11.09	701.13
					09/14/04	12.50	699.72
					12/20/04	11.95	700.27
					07/16/05	11.75	700.47
					06/15/05	11.51	700.71
					09/21/05	11.90	700.12
					12/05/05	12.25	699.87
					01/30/06	11.55	700.67
					03/13/06	9.63	702.57
MW-133R	711.74	712.12	10-20	701.74-691.74	06/12/06	11.61	700.61
					10/13/06	11.81	699.91
MW-133	708.79	N/A	8-18	700.79-690.79	12/20/06	11.24	700.30
					09/11/05	8.84	699.04
					02/05/97	7.26	701.50
					11/22/99	8.24	700.45
					02/28/00	8.61	700.18
					11/07/00	N/A	
					12/04/01	9.76	699.27
					03/10/04	9.19	699.84
					06/02/04	8.93	700.06
					09/14/04	9.63	699.10
					12/20/04	9.74	699.29
					03/16/05	9.59	699.64
					06/13/05	9.79	699.74
					09/21/05	9.74	699.29
					12/05/05	9.34	699.69
					01/20/06	9.15	699.88
					03/13/06	7.83	701.18
					06/12/06	9.15	699.88
					10/13/06	9.93	699.10
					12/20/06	9.60	699.63
MW-133R	708.87	709.10	8-18	700.83-690.83			
	709.03	-	7-17	-			



**Table 1**  
**Water Level Data Summary**  
*Former General Motors Corporation*  
 African Gas Turbine Division, Plant 10  
 Indianapolis, Indiana  
 IDEM VRP 00001004  
 KERAMIDA Project No. 2020E

Monitoring Well ID	TOC Elevation <sup>(1)</sup> (feet amsl)	Ground Elevation <sup>(2)</sup> (feet amsl)	Screen Interval (feet bgs)	Screen Depth (feet amsl)	Date Gauged	DTW (feet)	GW Elevation (feet amsl)
MW-135	713.69	N/A	10-20	707.69-697.69	07/14/95	13.26	700.43
	713.70	714.10	10-20	707.70-697.70	09/11/95	13.66	700.03
					03/05/97	11.96	701.75
					02/26/97	12.47	701.22
					11/22/99	14.20	699.49
					02/28/00	14.03	699.64
					11/07/00	14.12	699.58
					06/20/01	13.83	699.83
					07/24/01	13.67	700.03
					01/20/02	13.80	699.90
					07/15/02	12.05	701.45
					12/03/03	13.01	700.69
					03/10/04	12.97	700.73
					06/03/04	12.35	701.35
					06/18/04	13.62	700.08
					12/29/04	13.40	700.30
					03/16/05	12.56	701.14
					06/13/05	12.80	700.84
					09/21/05	13.83	699.87
					12/09/05	12.42	701.28
					01/20/06	13.35	700.35
					03/13/06	12.00	701.70
					06/12/06	12.60	701.10
					10/13/06	13.71	699.99
					12/20/06	13.04	700.66
					07/14/07	8.83	699.05
					09/11/07	8.83	699.05
					02/05/07	7.43	700.47
					11/22/09	9.10	699.80
					03/28/00	8.62	699.78
					11/07/00	8.74	699.20
					06/21/01	8.82	699.12
					03/24/01	8.78	699.30
					01/20/02	8.05	699.33
					07/22/02	8.89	699.09
					12/04/03	8.83	699.15
					03/10/04	8.93	699.05
					06/03/04	8.51	699.47
					09/14/04	9.29	698.39
					12/20/04	9.09	698.89
					03/16/05	8.99	699.08
					09/21/05	9.00	698.98
					12/05/05	9.43	698.53
					01/20/06	8.60	699.58
					03/15/06	7.79	700.28
					06/13/06	8.80	699.18
					10/13/06	9.22	698.76
					12/20/06	8.91	699.07
					07/14/05	9.41	699.26
					09/11/05	9.44	699.23
					03/04/07	7.04	700.79
					11/23/09	9.73	698.94
					02/28/00	9.91	698.76
					11/07/00	8.93	699.76
					06/21/01	9.48	699.23
					07/24/01	9.51	699.20
					01/20/02	9.31	699.40
					07/13/02	10.09	698.62
					12/03/03	8.5	699.21
					12/19/03	9.5	699.21
					03/10/04	9.66	699.25
					06/03/04	9.12	699.39
					12/20/04	9.76	698.95
					03/16/05	9.66	699.25
					06/13/05	9.54	699.37
					09/21/05	9.43	699.26
					12/05/05	8.44	700.27
					01/20/06	9.20	699.51
					03/13/06	8.60	700.11
					06/13/06	9.48	699.23
					10/13/06	9.89	698.85
					12/20/06	9.56	699.15

**Table 1**  
**Water Level Data Summary**  
*Former General Motors Corporation*  
**Allison Gas Turbine Division, Plant 10**  
**Indianapolis, Indiana**  
**IDEN VBP 4609104**  
**KERANDA Project No. 2829E**

Monitoring Well ID	TDC Elevation <sup>(1)</sup> (feet asat)	Ground Elevation <sup>(1)</sup> (feet asat)	Screen Interval (feet Deep)	Screen Depth (feet asat)	Date Capped	DTW (feet)	GW Elevation (feet asat)
MW-147	711.88	N/A	20-30	601.88-681.88	07/14/95	11.09	700.79
					08/11/95	11.20	700.88
					02/04/97	9.97	701.97
MW-147A	711.51	711.60	20-30	601.51-681.51	11/22/99	11.49	700.59
	711.61	712.07	20-30	601.61-681.61	02/28/00	11.44	700.44
					11/07/00	11.40	700.13
					06/21/01	12.46	699.15
					07/24/01	11.22	700.59
					01/20/02	11.34	700.27
					07/23/02	11.06	700.84
					04/07/03	11.58	700.11
					12/03/03	11.14	700.47
					03/10/04	10.76	700.83
MW-147A					06/02/04	10.45	701.16
					09/14/04	11.76	699.83
					12/20/04	11.33	700.26
					07/10/05	11.19	700.42
					06/13/05	11.98	699.63
					09/21/05	11.33	700.28
					12/03/05	11.66	699.05
					01/20/06	10.89	700.72
					03/13/06	9.90	702.61
					10/13/06	11.70	700.01
MW-147AR	711.71	712.03	20-30	601.71-681.71	12/20/06	11.19	700.52
MW-148	711.00	N/A	10.5-25.5	700.50-685.50	07/14/95	10.43	700.57
					09/11/95	10.50	700.50
					02/04/97	8.25	702.75
					02/26/97	10.13	700.84
					11/22/99	11.50	699.50
					02/28/00	10.36	700.64
					11/07/00	10.90	700.14
					06/21/01	10.73	700.31
					07/24/01	10.55	700.52
					01/20/02	10.73	700.54
MW-148	711.04	712.00	10.5-25.5	700.54-685.51	07/22/02	11.31	699.76
					05/07/03	11.23	699.82
					12/03/03	10.31	700.76
					03/10/04	10.16	700.91
					06/02/04	10.11	700.96
					09/14/04	11.40	699.67
					12/20/04	11.02	700.08
					01/16/05	10.89	700.18
					06/13/05	10.65	700.42
					09/21/05	10.83	700.25
MW-148	711.07	712.00	10.5-25.5	700.57-685.57	12/03/05	10.71	700.36
					01/20/06	10.53	700.54
					03/13/06	8.70	702.37
					06/13/06	10.80	700.77
					10/13/06	11.71	699.71
					12/20/06	11.17	700.27
					09/11/05	13.30	699.63
					02/03/97	11.35	701.18
					11/22/99	13.57	699.56
					02/28/00	13.50	699.43
MW-148	712.00	713.50	4-19	708.90-693.90	11/07/00	13.80	699.10
					06/20/01	13.51	699.59
					07/24/01	12.88	700.08
					01/20/02	13.76	699.29
					07/19/02	12.18	700.78
					05/07/03	11.85	701.11
					12/03/03	12.85	700.11
					03/01/04	12.28	700.68
					02/10/04	13.00	699.96
					06/02/04	12.17	700.79
MW-148	712.96	713.58	4-19	708.96-693.96	09/14/04	13.35	699.61
					12/20/04	13.65	699.31
					03/16/05	13.31	701.65
					06/13/05	13.11	699.85
					09/21/05	12.66	700.30
					12/03/05	13.12	699.84





**Table 1**  
**Water Level Data Summary**  
*Former General Motors Corporation*  
 Alton Gas Turbine Division, Plant 10  
 Indianapolis, Indiana  
 IDEM VWP 6699/064  
 KTRAMDA Project No. 2020E

Monitoring Well ID	TWC Elevation <sup>(1)</sup> (feet aml)	Ground Elevation <sup>(2)</sup> (feet aml)	Screen Interval (feet bgl)	Screen Depth (feet aml)	Date Gauged	DTW (feet)	GW Elevation (feet aml)
MW-153 (cont'd.)	711.67	709.30	4.5-19.5	707.67-692.67	09/14/04	12.68	698.56
					12/20/04	12.68	698.99
					03/16/05	10.76	700.91
					06/13/05	8.98	702.69
					09/21/05	12.16	699.51
					12/03/05	9.21	702.46
					01/20/06	12.70	698.97
					03/11/06	11.25	700.42
					06/12/06	11.90	699.77
					10/13/06	12.79	698.88
					12/20/06	12.07	699.69
					07/14/05	13.31	700.91
					09/11/05	13.42	700.60
					02/05/07	12.17	702.05
					02/26/07	13.07	701.15
MW-154	714.22	711.60	5-20	709.26-699.26	11/22/99	14.11	700.11
					02/28/00	12.38	700.84
					11/07/00	14.02	700.24
					06/21/01	13.79	700.47
					07/24/01	13.77	700.69
					01/16/02	13.88	700.58
					07/22/02	13.37	700.89
					12/03/03	13.57	700.69
					03/10/04	13.41	700.83
					06/02/04	13.44	700.83
					09/14/04	14.25	700.01
					12/20/04	13.51	700.75
					03/16/05	13.64	700.62
					06/11/05	13.35	700.91
					09/21/05	13.82	700.44
MW-156	711.69	NA	5-20	706.69-691.69	12/03/05	14.15	700.11
					01/26/06	13.48	700.81
					03/11/06	11.50	702.76
					06/12/06	13.40	700.86
					10/13/06	14.10	700.16
					12/20/06	13.61	700.63
					09/11/05	12.21	699.48
					02/05/07	10.65	701.04
					11/22/09	12.32	699.17
					02/28/00	12.41	699.28
					11/07/00	12.66	699.06
					06/20/01	12.43	699.29
					07/24/01	12.35	699.17
					01/30/02	12.25	699.47
					07/18/02	11.46	700.36
MW-157	711.30	N/A	5-20	706.56-691.30	12/04/03	13.97	699.75
					03/10/04	11.82	699.87
					06/02/04	11.48	700.21
					07/16/04	12.09	699.60
					08/16/04	12.36	699.13
					09/14/04	17.55	699.14
					10/18/04	12.54	699.15
					11/18/04	12.40	699.29
					12/20/04	12.40	699.29
					01/24/05	10.65	701.04
					03/16/05	11.77	699.92
					06/12/05	11.61	700.08
					09/21/05	12.42	699.27
					12/05/05	12.71	698.98
					01/20/06	12.10	699.59
MW-158	711.27	711.50	5-20	706.27-691.27	03/13/06	11.15	700.54
					06/12/06	11.70	699.99
					10/13/06	12.51	699.18
					11/21/06	11.87	699.82
					12/20/06	12.09	699.60
					02/05/07	10.71	700.59
					02/28/07	11.14	700.16
					03/28/08	12.40	698.90
					11/07/00	12.55	698.72
					06/21/01	13.54	698.93
					07/24/01	12.17	699.10
					01/20/02	12.18	699.09
					07/19/02	11.10	700.17
					12/04/03	11.85	699.47



**Table 1**  
**Water Level Data Summary**  
**Former General Motors Corporation**  
**Albion Gas Turbine Division, Plant 10**  
**Indianapolis, Indiana**  
**DECM VWP #6091004**  
**KFR/AMRDA Project No. 2003E**

Monitoring Well ID	TOC Elevation <sup>(a)</sup> (feet asst)	Ground Elevation <sup>(a)</sup> (feet asst)	Screen Interval (feet bgs)	Screen Depth (feet asst)	Date Capped	DTW (feet)	GW Elevation (feet asst)
MW-137 (cont'd.)	711.27	711.50	5-20	706.27-691.27	03/03/04	10.62	705.65
					05/10/04	11.66	699.61
					06/02/04	12.94	698.33
					06/14/04	12.57	698.70
					12/26/04	12.19	699.08
					03/16/05	11.57	699.70
					06/13/05	11.67	699.60
					09/21/05	12.35	698.92
					06/12/06	11.60	699.67
					10/12/06	12.43	698.85
					12/20/06	11.81	699.56
					02/28/08	11.19	698.81 <sup>(b)</sup>
MW-139	710.00	710.40	N/A	N/A	11/07/80	11.47	698.53
					06/21/81	11.43	698.57
					07/24/81	11.36	698.04
					01/26/82	11.22	698.78
					07/15/82	12.12	697.87
					03/10/84	12.15	697.85
					06/02/84	11.94	698.06
					09/21/85	12.20	697.80
					01/20/86	11.90	698.10
					03/15/86	11.35	698.65
					06/12/86	12.40	697.60
					10/13/86	14.69	695.31
MW-160	701.12 <sup>(b)</sup>	701.35 <sup>(b)</sup>	3-13	698.10-688.10	12/20/86	17.12	692.68
					11/07/88	3.17	698.97
					06/21/81	1.95	699.15
					07/24/81	2.16	698.84
					01/26/82	1.78	699.12
					07/17/82	2.31	698.79
					12/04/83	2.58	698.52
					03/10/84	2.45	698.55
					06/04/84	2.26	698.84
					09/14/84	2.70	698.40
					12/20/84	2.60	698.50
					03/16/85	2.66	698.44
MW-161	702.96 <sup>(b)</sup>	703.38 <sup>(b)</sup>	3-13	699.90-689.90	06/21/81	3.69	699.20
					07/24/81	4.02	698.97
					1/26/2002	3.98	699.41
					07/18/02	4.17	698.82
					12/04/03	3.10	699.89
					02/10/04	1.07	701.92
					06/04/04	2.83	703.16
					09/14/04	4.20	698.79
					12/20/04	4.26	698.75
					03/16/05	4.06	699.93
					06/15/05	4.81	698.18
					09/21/05	4.00	698.90
MW-163	712.56	712.99	10-20	702.36-692.36	12/03/05	4.71	698.28
					01/20/06	3.60	699.39
					04/05/06	4.90	698.09
					06/12/06	4.32	698.67
					10/11/06	4.38	698.61
					12/20/06	4.11	698.88
					11/07/08	13.15	699.21
					06/20/01	12.83	699.53
					07/24/01	17.64	699.41
					01/20/02	12.83	699.53
					07/18/02	11.22	701.14
					07/16/04	12.03	700.37
					08/16/04	11.83	700.53
					10/18/04	12.64	699.72
					11/18/04	12.12	700.24
					12/20/04	11.67	700.69

Table 1  
Water Level Data Summary  
Former General Motors Corporation  
Althen Gas Turbine Division, Plant 18  
Indianapolis, Indiana  
IDEM VBP 60591004  
KERAMIDA Project No. 2029E

Measuring Well ID	TWC Elevation <sup>(1)</sup> (feet amsl)	Ground Elevation <sup>(2)</sup> (feet amsl)	Screen Interval (feet bgs)	Screen Depth (feet amsl)	Date Canged	DTW (feet)	GW Elevation (feet amsl)
MW-103 (cecid)	712.56	712.90	10-20	702.56-692.36	01/24/03	9.95	702.43
					01/16/03	11.25	701.11
					06/13/03	10.98	701.38
					06/21/03	11.80	701.56
					12/05/03	11.54	700.82
					01/20/06	11.65	700.71
					03/13/06	10.75	701.61
					06/12/06	11.53	701.03
					10/13/06	12.18	700.18
					11/21/06	11.19	701.17
MW-104	718.56	719.33	16-26	702.56-692.36	12/20/06	11.54	700.82
					11/07/09	19.87	693.69
					06/21/01	19.67	698.69
					07/24/01	19.47	698.09
					01/20/02	19.43	699.11
					07/19/02	17.97	701.59
					12/05/03	18.75	699.81
					03/03/04	18.56	700.00
					03/10/04	18.60	699.96
					06/02/04	19.52	699.04
MW-105	712.54	712.88	10-20	702.54-692.34	06/14/04	19.42	699.14
					12/20/04	19.28	699.28
					01/16/05	18.29	700.27
					06/13/05	18.78	699.78
					06/21/05	19.60	698.04
					12/05/05	18.82	698.74
					01/26/06	19.56	699.06
					03/13/06	18.43	700.11
					06/12/06	19.50	699.06
					10/13/06	19.39	699.17
MW-166E	712.09	713.38	18-28	702.99-692.99	12/20/06	18.80	699.79
					06/21/01	13.80	698.74
					07/24/01	13.71	698.83
					01/20/02	13.52	699.02
					07/18/02	13.82	698.72
					12/05/03	13.56	698.98
					03/10/04	13.93	698.61
					06/02/04	13.69	698.85
					09/14/04	14.49	698.05
					12/20/04	14.20	698.34
MW-167S	716.23	716.33	12-22	704.23-694.23	05/16/05	13.97	698.57
					06/13/05	13.29	699.25
					09/21/05	13.90	698.64
					12/05/05	14.35	698.19
					01/26/06	13.60	698.94
					03/13/06	13.00	699.54
					06/12/06	13.69	698.50
					10/13/06	18.35	694.30
					12/20/06	13.94	698.60
					07/24/01	14.32	698.67
MW-168E	712.09	713.38	18-28	702.99-692.99	01/26/02	14.32	698.67
					07/18/02	14.41	698.58
					12/19/03	14.69	698.10
					03/10/04	14.61	698.38
					06/02/04	14.28	698.71
					09/14/04	15.24	697.75
					12/20/04	14.92	698.07
					03/16/05	14.56	698.42
					06/13/05	13.98	699.01
					09/21/05	14.75	698.24
MW-169E	712.09	713.38	18-28	702.99-692.99	12/05/05	15.00	697.99
					01/26/06	14.20	698.69
					03/13/06	13.60	699.39
					06/12/06	14.55	698.44
					10/13/06	14.89	698.10
					12/20/06	14.54	698.45
					06/21/01	17.90	698.26
					07/24/01	17.81	698.44
					01/26/02	17.90	698.35
					07/11/02	17.24	698.51
MW-170E	712.09	713.38	18-28	702.99-692.99	12/04/03	18.12	698.15
					03/10/04	18.00	698.25
					06/02/04	17.91	698.54
					09/14/04	18.75	697.50
					12/20/04	18.75	697.50
					01/26/05	18.75	697.50
					03/10/05	18.75	697.50
					06/02/05	18.75	697.50
					09/14/05	18.75	697.50
					12/20/05	18.75	697.50



**Table 1**  
**Water Level Data Summary**  
**Former General Motors Corporation**  
**Arlbas Gas Turbine Division, Plant 10**  
**Indianapolis, Indiana**  
**IDEX VSP 4491104**  
**KEBAHIDA Project No. 2029E**

Monitoring Well ID	TOC Elevation (feet amsl)	Ground Elevation (feet amsl)	Screen Interval (feet bgl)	Screen Depth (feet amsl)	Date Canged	DTW (feet)	GW Elevation (feet amsl)
MW-1675 (cont'd.)	716.25	716.55	12-22	704.25-694.25	12/20/04	18.29	697.96
					03/16/05	17.95	698.30
					06/13/05	18.20	698.09
					09/21/05	18.50	697.75
					12/05/05	17.20	699.05
					01/20/06	18.60	698.25
					03/13/06	17.10	699.15
					06/12/06	17.90	698.35
					10/13/06	18.83	697.42
					12/20/06	17.90	698.35
					06/21/01	17.66	698.66
					07/24/01	17.60	698.11
					01/26/02	17.66	697.75
					7/18/2002	17.39	697.4
					03/16/04	17.43	697.56
MW-1696	715.95	716.25	13-22	703.66-693.66	06/02/04	17.55	697.46
					09/14/04	18.18	698.51
					03/16/05	17.41	697.58
					06/13/05	17.12	697.97
					09/21/05	17.7	697.99
					12/05/05	18.02	696.77
					01/26/06	17.39	697.40
					03/13/06	16.21	698.58
					06/12/06	16.54	698.45
					10/13/06	18.12	696.67
					12/20/06	17.54	697.25
					01/26/02	19.75	696.20
					07/17/02	18.91	697.04
					12/04/03	19.72	696.23
					03/16/04	19.47	696.48
MW-1705	717.40	717.77	13-27	700.40-690.40	06/02/04	19.56	698.39
					09/14/04	20.50	695.45
					12/20/04	20.83	696.55
					06/15/05	20.68	696.72
					09/21/05	21.47	695.93
					13/04/05	22.11	694.89
					01/20/06	20.60	696.80
					03/13/06	20.10	697.30
					06/12/06	19.90	697.50
					10/13/06	21.20	696.20
					12/20/06	19.98	697.42
					01/26/02	13.29	699.54
					07/17/02	13.02	699.81
					03/16/04	13.14	699.69
					12/20/04	13.25	699.28
MW-1725	716.23	716.54	13-25	703.58-693.58	09/21/05	15.88	696.13
					12/05/05	15.42	696.41
					10/13/06	16.33	695.50
					09/04/02	20.45	693.78
					03/10/04	19.61	696.62
					06/02/04	19.78	696.45
					09/14/04	20.93	694.30
					12/20/04	20.24	695.99
					3/16/2005	18.95	697.28
					06/15/05	Abandoned	

**Table 1**  
**Water Level Data Summary**  
**Former General Motors Corporation**  
**Autom Gas Turbine Division, Plant 10**  
**Indianapolis, Indiana**  
**IDEM VAP #0931004**  
**KERAMIDA Project No. 2029C**

Monitoring Well ID	TOC Elevation <sup>(1)</sup> (feet amsl)	Ground Elevation <sup>(1)</sup> (feet amsl)	Screen Interval (feet bpt)	Screen Depth (feet amsl)	Date Gauged	DTW (feet)	GW Elevation (feet amsl)
MW-173	713.33	713.61	8-18	705.61-695.61	3/3/2004	12.72	700.51
					7/16/2004	13.60	700.34
					8/16/2004	13.00	700.17
					10/18/2004	13.56	699.67
					11/19/2004	13.38	699.85
					12/20/04	13.45	699.78
					1/24/2005	10.55	702.68
					3/16/2005	12.21	701.02
					6/13/2005	12.83	700.18
					9/21/2005	13.50	699.73
					12/5/2005	12.81	700.42
					1/10/2006	13.30	699.93
					6/12/2006	12.60	700.63
					10/13/2006	13.99	699.64
					11/21/2006	12.96	700.27
					12/20/2006	13.03	700.30
					3/3/2004	11.78	700.76
MW-1	712.54	712.95	10.5-13.5	702.45-697.45	7/16/2004	12.11	700.43
					8/16/2004	12.05	700.40
					10/18/2004	12.57	700.17
					11/19/2004	12.20	700.55
					12/20/04	12.02	700.53
					1/24/2005	10.11	702.43
					3/16/2005	11.51	701.23
					6/13/2005	11.12	701.42
					9/21/2005	11.90	700.64
					12/5/2005	10.12	702.42
					1/10/2006	11.80	700.74
					3/13/2006	10.80	701.74
					6/12/2006	11.45	701.09
					10/13/2006	12.19	700.35
					11/21/2006	11.35	701.19
					12/20/2006	11.70	700.84
					3/3/2004	12.21	700.60
MW-2	712.83	713.27	12-17	701.27-696.27	7/16/2004	12.70	700.13
					8/16/2004	13.10	699.73
					10/18/2004	13.25	699.58
					11/19/2004	13.05	699.78
					12/20/04	13.20	699.63
					1/24/2005	10.03	702.80
					3/16/2005	12.19	700.64
					6/13/2005	11.08	700.85
					9/21/2005	13.06	699.77
					12/5/2005	11.72	701.11
					1/10/2006	12.90	699.93
					3/13/2006	11.85	700.98
					6/12/2006	12.20	700.63
					10/13/2006	13.18	699.65
					11/21/2006	12.56	700.27
					12/20/2006	12.62	700.21
					Deep Water		
MW-165D	712.34	712.78	42-47	670.34-665.34	01/20/02	13.33	699.01
					07/18/02	13.66	698.68
					12/03/03	13.51	698.83
					03/10/04	13.71	698.63
					06/02/04	13.49	698.85
					09/14/04	14.29	698.05
					12/20/04	14.00	698.34
					03/16/05	13.78	698.56
					06/13/05	13.10	699.24
					09/21/05	13.75	698.59
					12/03/05	14.20	698.14
					01/30/06	13.45	698.89
					03/13/06	12.80	699.54
					06/12/06	13.72	698.61
					09/20/06	14.04	698.30
					12/20/06	13.72	698.62
					01/20/07	14.10	698.66
07/18/07	14.08	698.68					
MW-166D	712.76	713.04	46-51	666.76-661.76	01/06/04	13.05	699.73
					03/10/04	14.35	698.41
					06/02/04	14.09	698.67
					09/14/04	13.02	697.74
					12/20/04	14.75	698.03
					03/16/05	14.36	698.40



**Table 1**  
**Water Level Data Summary**  
**Former General Motors Corporation**  
**Allison Gas Turbine Division, Plant 10**  
**Indianapolis, Indiana**  
**IDEM VEP #691004**  
**KCRAMIDA Project No. 2679E**

Monitoring Well ID	TOC Elevation (feet asst)	Grossed Elevation <sup>01</sup> (feet asst)	Screen Interval (feet bgt)	Screen Depth (feet asst)	Date Gauged	DTW (feet)	GW Elevation (feet asst)
MW-160D (cont'd.)	712.76	713.04	46-51	606.25-683.75	09/13/05	14.22	698.54
					09/21/05	14.55	698.21
					12/03/05	13.15	697.61
					01/20/06	14.56	698.40
					03/13/06	13.35	699.41
					06/12/06	14.32	698.44
					09/26/06	14.74	698.02
					12/20/06	14.54	698.43
					01/30/07	17.90	698.55
					07/17/07	17.73	698.52
					12/04/07	18.18	698.07
					03/10/04	18.04	698.31
MW-167D	716.25	716.69	38-37	608.25-683.25	06/02/04	17.72	698.53
					09/14/04	18.76	697.66
					12/20/04	18.47	697.78
					03/16/05	17.83	698.40
					06/13/05	18.24	698.03
					09/21/05	18.53	697.72
					12/05/05	18.32	697.93
					01/20/06	18.00	698.25
					03/13/06	17.20	699.07
					06/12/06	17.92	698.33
					09/26/06	18.51	697.74
					12/20/06	17.97	698.38
MW-168D	714.71	715.09	36-31	608.71-683.71	01/30/02	17.00	697.71
					07/18/02	17.27	697.44
					06/02/04	17.38	697.43
					09/14/04	18.15	696.56
					12/20/04	17.81	696.90
					03/16/05	16.58	698.13
					06/13/05	26.21	688.50
					09/21/05	17.50	697.03
					12/05/05	20.22	694.69
					01/20/06	17.50	697.21
					03/13/06	16.35	698.56
					06/12/06	16.23	698.58
MW-169D	715.23	716.23	33-37	683.23-678.23	09/26/06	17.93	696.78
					12/20/06	17.29	697.32
					01/30/07	19.65	695.58
					07/17/07	18.82	696.41
					12/04/07	19.66	695.57
					03/10/04	19.41	695.82
					06/02/04	19.52	693.71
					09/14/04	20.45	694.78
					12/20/04	20.10	693.13
					03/16/05	18.93	696.30
					06/13/05	20.00	695.23
					09/21/05	20.61	694.60
MW-170D	717.54	717.76	34-39	683.54-678.54	12/03/05	20.61	694.61
					01/20/06	19.83	695.40
					03/13/06	19.33	695.90
					06/12/06	19.24	695.99
					09/26/06	20.57	694.84
					12/20/06	19.20	695.03
					01/30/07	20.40	696.94
					07/17/07	19.29	698.03
					03/10/04	20.13	697.21
					06/02/04	20.31	697.13
					09/14/04	21.17	696.17
					12/20/04	20.78	696.56
					06/15/04	20.61	696.71
					09/21/05	21.46	695.94
					12/05/05	21.21	696.13
					01/20/06	20.50	696.44
					03/13/06	20.00	697.34
					06/12/06	19.80	697.54
					09/26/06	21.02	696.52
					12/20/06	19.92	697.42

**Table 1**  
**Water Level Data Summary**  
**Former General Motors Corporation**  
**Alison Cua Turbine Division, Plant 10**  
**Indianapolis, Indiana**  
**IPDM VMP 60991004**  
**KERAMIDA Project No. 2020R**

Monitoring Well ID	TOC Elevation <sup>(1)</sup> (feet amsl)	Ground Elevation <sup>(2)</sup> (feet amsl)	Screen Interval (feet bgl)	Screen Depth (feet amsl)	Date Gauged	DTW (feet) (ft)	GW Elevation (feet amsl) (feet)
MW-171D	711.88	712.15	44-49	667.58-662.88	01/31/02	15.16	696.72
					03/10/04	15.51	696.37
					12/20/04	15.98	695.90
					09/21/05	16.20	695.68
					12/09/05	16.23	695.65
					06/12/06	15.48	696.40
					09/26/06	16.21	695.67
					09/04/07	20.17	695.86
					03/10/04	19.43	696.60
					06/02/04	19.61	696.42
MW-172D	716.03	716.53	33-38	683.57-678.53	09/14/04	20.57	695.46
					12/20/04	20.14	695.89
					03/10/05	18.71	697.32
					06/13/05	Aluminum	
					02/05/97	11.75	701.00
					11/22/99	13.77	698.98
					02/28/00	13.50	699.25
					11/07/00	13.76	698.99
					06/20/01	13.57	699.18
					07/24/01	13.59	699.16
MW-301	712.75	713.20	45-50	667.75-662.75	03/10/02	13.31	699.44
					03/18/02	12.78	699.97
					03/10/04	13.74	699.01
					06/02/04	13.11	699.64
					09/14/04	13.78	698.06
					12/20/04	13.28	699.46
					03/16/05	11.89	700.86
					06/13/05	13.51	699.24
					09/21/05	13.63	699.12
					12/03/05	13.43	699.38
MW-302	711.94	NA	45-55	666.54-656.54	01/26/06	13.10	700.75
					06/13/06	12.08	700.75
					09/26/06	13.50	699.25
					12/20/06	13.21	699.54
					02/03/07	11.28	700.28
					02/26/07	12.37	699.21
					11/23/09	13.26	698.28
					02/28/00	12.70	698.84
					11/07/00	13.00	698.60
					06/21/01	12.99	698.61
	711.60	709.60	45-55	666.60-656.60	07/24/01	12.82	698.18
					01/26/02	12.61	698.99
					07/23/02	12.90	698.7
					03/10/04	12.93	698.67
					06/02/04	12.68	698.92
					09/14/04	13.56	698.04
					12/20/04	12.24	699.16
					03/16/05	13.08	698.52
					06/13/05	12.98	698.62
					09/21/05	12.92	698.65
					12/03/05	13.02	698.38
					01/20/06	11.50	700.10
					03/11/06	12.00	699.60
					06/12/06	13.00	699.60
					09/26/06	13.29	698.11
					12/20/06	12.98	698.62

<sup>(1)</sup> For wells surveyed more than once, subsequent survey information is listed with the first gauging event following the survey.

<sup>(2)</sup> Survey data from 3-6-02 were used to calculate all groundwater and screen elevations.

<sup>(3)</sup> Survey data from 11-7-00 were used to calculate the groundwater elevation.

anal - above mean sea level

BGS - below ground surface

DTW - depth to water

GW - groundwater

NA - information is not available

SW - surface water

TOC - top of well casing





Table 20

Forrest General Motors Corporation

Forrest General Motors Corporation

Allison Cook, Technical Director, Phased In

**Authors' note:** Underwritten

**THE LATEST FROM**  
**THE LATEST FROM**

From 17 November 1999 through 11 Feb. 2000, the study area

For more information, visit [www.pearsoned.com](http://www.pearsoned.com)  
 See your agent for information



Table 13  
 Station Monitoring Well Construction and Analytical Results for VOCs (ug/L)

Albion Chemical Services  
 Albion Gas Treatment Division, Plant 1B  
 Indianapolis, Indiana  
 00004 VAP assessment  
 BERA MEDIA Project No. 201706

Sample No.	Date Sampled	Screen Interval (ft)	Lab Sample No.	L-1 Chlorobenzene	L-1,2-Dichlorobenzene	L-1,2,4-Trichlorobenzene	Methylene Chloride	Trichloroethene	L-1,1-Dichloroethene	L-1,1,1-Trichloroethene
MW 11A 10/6/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11	10/11/2006	5.25	W717061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	11/11/2006	5.25	W720061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	12/11/2006	5.25	W730061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	1/11/2007	5.25	W740061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	2/11/2007	5.25	W750061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	3/11/2007	5.25	W760061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	4/11/2007	5.25	W770061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	5/11/2007	5.25	W780061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	6/11/2007	5.25	W790061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	7/11/2007	5.25	W800061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	8/11/2007	5.25	W810061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	9/11/2007	5.25	W820061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	10/11/2007	5.25	W830061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	11/11/2007	5.25	W840061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	12/11/2007	5.25	W850061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	1/11/2008	5.25	W860061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	2/11/2008	5.25	W870061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	3/11/2008	5.25	W880061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	4/11/2008	5.25	W890061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	5/11/2008	5.25	W900061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	6/11/2008	5.25	W910061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
MW 11A 10/6/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11	10/11/2006	5.25	W717061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	11/11/2006	5.25	W720061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	12/11/2006	5.25	W730061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	1/11/2007	5.25	W740061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	2/11/2007	5.25	W750061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	3/11/2007	5.25	W760061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	4/11/2007	5.25	W770061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	5/11/2007	5.25	W780061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	6/11/2007	5.25	W790061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	7/11/2007	5.25	W800061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	8/11/2007	5.25	W810061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	9/11/2007	5.25	W820061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	10/11/2007	5.25	W830061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	11/11/2007	5.25	W840061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	12/11/2007	5.25	W850061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	1/11/2008	5.25	W860061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	2/11/2008	5.25	W870061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	3/11/2008	5.25	W880061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	4/11/2008	5.25	W890061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	5/11/2008	5.25	W900061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	6/11/2008	5.25	W910061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
MW 11A 10/6/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11 10/11/11	10/11/2006	5.25	W717061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	11/11/2006	5.25	W720061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	12/11/2006	5.25	W730061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	1/11/2007	5.25	W740061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	2/11/2007	5.25	W750061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	3/11/2007	5.25	W760061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	4/11/2007	5.25	W770061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	5/11/2007	5.25	W780061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	6/11/2007	5.25	W790061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	7/11/2007	5.25	W800061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	8/11/2007	5.25	W810061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	9/11/2007	5.25	W820061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	10/11/2007	5.25	W830061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	11/11/2007	5.25	W840061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	12/11/2007	5.25	W850061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	1/11/2008	5.25	W860061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	2/11/2008	5.25	W870061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	3/11/2008	5.25	W880061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	4/11/2008	5.25	W890061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	5/11/2008	5.25	W900061	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	6/11/2008	5.25	W910061	51.0	51.0	51.0	51.0	51.0	51.0	51.0

10/11/2006 10/11/2006

## Shallow Mudburys: Well-Cemented, Acidified Mudburys (see 10C's (right))

**Big Fish Community Analytics**  
Business Intelligence Consulting

### Future Clinical Studies in Cystic Fibrosis

Aileen Gao-Yueh Chen, PhD, is an Associate Professor at the University of Illinois at Chicago. She is also a senior research advisor at the Center for Communications Programs at the same university. Her research interests include the use of technology in health care, health care delivery, and health care policy. She has published numerous articles in the field of health care and technology. She is also a frequent speaker at national and international conferences.

Professur für Technische Informatik

**Abstract**

WILEY-VCH

[illegible]









## 12

12

**Former General Motors Corporation**

Allison Coss Traffic Division, Plant 18

Infants, 10 months, 110

**UNIVERSITY OF CALIFORNIA**  
LIBRARY  
1000 UNIVERSITY AVENUE  
LOS ANGELES, CALIF. 90024

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100

Part II New Product Development - Commercialization<sup>10</sup>





Table 3  
Shallow Monitoring Well Groundwater Analytical Results for PAHs (ng/L)  
Falcon General Motors Corporation  
Alfonso Gas Facilities Division, Plant 18  
Indianapolis, Indiana  
10404 YRP 0001004  
KERA MEDIA Project No. 28790

Sample No.	Date Sampled	Screen Interval (feet)	Lab Sample No.	Acenaphthene	Acenaphthylene	Anthracene	Benz (a) anthracene	Benz (a) pyrene	Benz (b) fluoranthene	Benz (k) fluoranthene	Chrysene	Dibenz (a,h) anthracene	Fluoranthene	Phenanthrene	Sum of 15 PAHs (ng/L)
MW-10-1	5/15/2002	7-17	324137	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-10-1 Dup	5/15/2002	7-17	324138	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-10-1B	1/10/2003	7-17	909002107	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-10-1B Dup	1/10/2003	7-17	909002110	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-10-1B	1/22/2004	7-17	A695006	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-10-1B	1/27/2005	7-17	A725002	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-10-1B Dup	1/27/2005	7-17	A725003	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-10-1B	12/05/2006	7-17	A750266	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-10-1B Dup	12/05/2006	7-17	A750267	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-120	12/11/2001	18-20	324139	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-120	1/10/2003	18-20	909002123	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-120	1/22/2004	18-20	A695007	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-120	1/27/2005	18-20	A725004	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-120B	12/05/2006	18-20	A750277	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-120B Dup	12/05/2006	18-20	A750278	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-120B	12/11/2001	18-20	909002131	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-120B	1/10/2003	18-20	A695008	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-120B	1/27/2005	18-20	A725005	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-120B	12/05/2006	18-20	A750282	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-120	5/22/2002	18-20	324001	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-120	7/15/2002	18-20	324002	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-120	1/10/2003	18-20	909002140	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-120	1/22/2004	18-20	A695009	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-120	1/27/2005	18-20	A725006	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-120	12/11/2001	18-20	909002149	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-140	5/21/2002	17.3-27.1	304411	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-140	7/15/2002	17.3-27.1	324140	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-140	1/10/2003	17.3-27.1	909002150	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-140	1/27/2005	17.3-27.1	A695010	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-140	12/05/2006	17.3-27.1	A750283	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-140	12/11/2001	17.3-27.1	909002159	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-140	5/21/2002	17.3-27.1	304412	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-140	7/15/2002	17.3-27.1	324141	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-140	1/10/2003	17.3-27.1	909002160	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-140	1/27/2005	17.3-27.1	A695011	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-140	12/05/2006	17.3-27.1	A750284	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-140	12/11/2001	17.3-27.1	909002169	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-140	5/21/2002	17.3-27.1	304413	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-140	7/15/2002	17.3-27.1	324142	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-140	1/10/2003	17.3-27.1	909002170	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-140	1/27/2005	17.3-27.1	A695012	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-140	12/05/2006	17.3-27.1	A750285	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-140	12/11/2001	17.3-27.1	909002179	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-140	5/21/2002	17.3-27.1	304414	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-140	7/15/2002	17.3-27.1	324143	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-140	1/10/2003	17.3-27.1	909002180	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-140	1/27/2005	17.3-27.1	A695013	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-140	12/05/2006	17.3-27.1	A750286	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20
MW-140B	12/05/2006	17.3-27.1	A750287	<0.02	<0.02	<0.02	<0.10	<0.20	<0.20	<0.20	<0.10	<0.10	<0.20	<0.02	<0.20

PAHs: Polycyclic Aromatic Hydrocarbons. Samples analyzed using EPA SW-846 Method 8193.

ng/L = nanograms per liter. B = blank & not listed.

<sup>(1)</sup> Indiana Department of Environmental Management Yearbook Remediation Program Business Data, Appendix F: The D-Change-Guide Human Health Evaluation by Office of Environmental Response, July 1996.

<sup>(2)</sup> Calculated using screening toxicity values and Tier II equation.

Table 3: Shallow Monitoring Well Groundwater Analytical Results for PAHs (ng/L)  
Page 1 of 2

Table 3  
Shallow Monitoring Well Groundwater Analytical Results for PAHs (ug/L)  
Powers General Motors Corporation  
Allison Gas Turbine Division, Plant 30  
Indianapolis, Indiana  
IDRM V-20 6091004  
KERAMIDA Project No. 2020E

Sample No.	Date Sampled	Screen Interval (feet)	Lab Sample No.	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (b) fluorene	Benzo (k) fluorene	Benzo (ghi) perylene	Benzo (h) fluoranthene	Chrysene	Debenzo (ah) anthracene	Fluoranthene	Phenanthrene	Pyrene	Sum of 15 PAHs (ug/L)
MW-150	6/20/2001	4-19	296790	<0.1	<0.1	<0.1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
MW-150	11/9/2001	4-19	324199	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
MW-150	12/8/2001	4-19	309002529	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
MW-150	12/1/2004	4-19	A684527	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.02
MW-150	12/1/2004	4-19	A724300	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.02
MW-150	12/1/2004	4-19	A786370	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.02
MW-152	6/20/2001	5-20	296801	<0.1	<0.1	<0.1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
MW-152	11/9/2001	5-20	316811	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
MW-152	12/8/2001	5-20	309002531	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
MW-152	12/1/2004	5-20	A684528	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.02
MW-152	12/1/2004	5-20	A724301	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.02
MW-152	12/1/2004	5-20	A786374	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.02
MW-153	12/1/2001	4.5-14.5	324200	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
MW-153	12/8/2001	4.5-14.5	309002540	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
MW-153 (F)	12/8/2001	4.5-14.5	309002552	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
MW-153	12/1/2004	4.5-14.5	A684535	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.02
MW-153	12/1/2004	4.5-14.5	A724302	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.02
MW-153 (F)	12/1/2004	4.5-14.5	A724303	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.02
MW-153 (F)	12/1/2004	4.5-14.5	A786375	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.02
MW-153 (F)	12/1/2004	4.5-14.5	A786376	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.02
MW-154	6/1/2001	5-20	296410	<0.1	<0.1	<0.1	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
MW-154	12/1/2001	5-20	324201	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
MW-154	12/8/2001	5-20	309002560	<0.10	<0.10	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
MW-154	12/1/2004	5-20	A684536	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.02
MW-154	12/1/2004	5-20	A724304	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.02
MW-154	12/1/2004	5-20	A786377	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.02
Total Residential Cleanup Goals - Groundwater <sup>1</sup>				1.624	0.827	0.120	0.10	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.40
Total Non-Residential Cleanup Goals - Groundwater <sup>2</sup>				0.12	0.04	0.006	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

PAHs = Polynuclear Aromatic Hydrocarbons Samples analyzed using EPA SW-846 Method 8310

ug/L = micrograms per liter If a result is calculated

<sup>1</sup> Indiana Department of Environmental Management Voluntary Remediation Program Resource Guide, Appendix F Tier 2 Cleanup Goals Human Health Evaluation by Office of Environmental Response, July 1996

<sup>2</sup> Calculated using average toxicity values and Tier II equations





Table 5

## East Off-Site Bioremediation Field Parameters and Select Groundwater Analytical Results

Former General Motors Corporation

Allison Gas Turbine, Plant 10

Indianapolis, Indiana

IDEM VRP #6991004

KERAMIDA Project No. 2829E

Sample No.	Date Sampled	pH	ORP (mV)	DO (mg/L)	TOC (mg/L)	cis-1,2-Dichloroethene (ug/L)	Trichloroethene (ug/L)	Vinyl chloride (ug/L)
IW-1	7/16/2004	7.58	287	1.91	<1	140	1,100	<1.0
	8/16/2004	7.56	34	0.26	21	87	900	<1.0
	10/18/2004	7.38	139	1.81	<1.0	330	1,500	<1.0
	11/19/2004	6.09	126	0.17	2,600	1,700	640	2.2
	12/21/2004	6.54	96	0.56	270	3,600	51	2.2
	1/24/2005	6.36	-112	1.39	340	1,700	32	1.7
	3/15/2005	6.75	NA	1.68	18	2,700	11	<1.0
	4/25/2005	7.91	-148.2	0.19	NA	NA	NA	NA
	6/14/2005	6.71	40	0.71	60	2,400	29	5.5
	9/23/2005	6.70	-98.9	0.99	46	1,400	59	350
	12/7/2005	7.01	-86	0.81	2.7	140	50	620
	3/15/2006	7.65	22	1.20	1.7	380	100	25
IW-2	6/15/2006	7.08	-126	2.82	1.6	430	120	83
	9/26/2006	7.01	-46.1	0.49	2.1	230	200	61
	11/21/2006	5.71	-36	5.96	2,700	620	26	100
	12/21/2006	5.88	-49.2	3.25	950	<10	<10	170
	7/16/2004	7.37	357	2.67	<1	44	170	<1.0
	8/16/2004	7.42	105	0.77	11	46	210	<1.0
	10/18/2004	7.34	286	2.45	<1.0	96	290	<1.0
	11/19/2004	7.09	138	0.25	6.3	550	150	2.5
	12/21/2004	7.20	118	1.05	<1.0	310	230	1.1
	1/24/2005	7.09	1.8	1.50	<1.0	240	190	1.7
	3/15/2005	7.14	NA	3.93	NA	280	130	21
	4/25/2005	7.98	100.2	3.73	NA	NA	NA	NA
MW-163	6/14/2005	7.38	104	4.20	NA	130	160	<1.0
	9/23/2005	7.09	193.8	3.29	NA	37	130	<1.0
	12/7/2005	7.24	124	3.84	NA	51	190	<1.0
	3/15/2006	7.72	85	3.32	NA	54	180	<1.0
	6/15/2006	7.16	145	8.64	NA	18	110	<1.0
	9/26/2006	7.43	53.2	3.47	NA	32	110	<1.0
	11/21/2006	7.21	-78	0.18	3.9	89	83	12
	12/21/2006	7.08	-96	0.33	1.1	41	100	<1.0
	7/16/2004	7.55	294	1.67	<1	250	1,200	<1.0
	8/16/2004	7.54	330	0.81	7.2	240	790	<1.0
	10/18/2004	7.29	223	4.22	<1.0	530	1,600	<1.0
	11/19/2004	6.64	120	0.33	220	1,300	700	<1.0
MW-163	12/21/2004	7.31	124	1.50	<1.0	620	470	<1.0
	1/24/2005	7.42	-23.9	2.00	9.9	380	360	<1.0
	3/15/2005	7.20	NA	4.34	NA	650	400	<1.0
	4/25/2005	8.35	10.1	4.37	NA	NA	NA	NA
	6/14/2005	7.14	78	3.75	NA	420	420	<1.0
	9/23/2005	6.90	108.2	0.50	NA	1,200	640	54
	12/7/2005	7.22	-38	4.28	NA	830	520	220
	3/15/2006	7.96	6	2.94	NA	270	410	96
	6/15/2006	7.32	-23	4.02	NA	220	440	52
	9/26/2006	7.20	209.9	1.35	NA	120	450	20
	11/21/2006	6.97	-101	3.81	170	1,200	58	42
	12/21/2006	7.00	-60	3.45	3.5	91	28	13
Risk-Based Groundwater Concentrations*					NA	104,000	1,800	198

See last page for footnotes



Table 5

## East Off-Site Bioremediation Field Parameters and Select Groundwater Analytical Results

Former General Motors Corporation

Allison Gas Turbine, Plant 10

Indianapolis, Indiana

IDEM VRP #6991004

KERAMIDA Project No. 2829E

Sample No.	Date Sampled	pH	ORP (mV)	DO (mg/L)	TOC (mg/L)	cis-1,2-Dichloroethene (ug/L)	Trichloroethene (ug/L)	Vinyl chloride (ug/L)
MW-173	7/16/2004	7.30	286	1.03	<1	180	300	<1.0
	8/16/2004	7.37	340	0.47	8.7	120	260	<1.0
	10/18/2004	7.30	291	1.40	1.7	120	340	<1.0
	11/19/2004	7.26	161	1.21	37	150	330	<1.0
	12/21/2004	7.31	262	2.59	<1.0	260	430	<1.0
	1/24/2005	7.06	-15.4	2.72	<1.0	190	290	<1.0
	3/15/2005	7.20	N/A	4.63	N/A	110	290	<1.0
	4/25/2005	N/A	128.2	3.47	N/A	N/A	N/A	N/A
	6/14/2005	7.21	104	3.07	N/A	57	320	<1.0
	9/23/2005	7.05	207.7	3.21	N/A	36	230	<1.0
	12/7/2005	7.37	102	6.48	N/A	29	170	<1.0
	3/15/2006	7.86	64	4.41	N/A	55	240	<1.0
MW-156	6/15/2006	7.23	28	3.20	N/A	36	290	<1.0
	9/26/2006	7.15	293.3	2.18	N/A	30	210	<1.0
	11/21/2006	7.35	0.51	2.32	<1.0	26	220	<1.0
	12/21/2006	7.12	2.0	1.55	1.0	39	270	<1.0
	7/16/2004	7.26	296	0.59	<1	36	230	<1.0
	8/16/2004	7.33	351	0.22	9.1	37	230	<1.0
	10/18/2004	7.26	270	6.66	<1.0	<1.0	13	<1.0
	11/19/2004	7.30	238	0.85	2.9	52	260	<1.0
	12/21/2004	7.38	253	1.70	1.5	54	250	<1.0
	1/24/2005	7.25	25.9	2.42	<1.0	35	130	<1.0
	3/16/2005	7.13	N/A	1.96	N/A	53	230	<1.0
	6/14/2005	7.42	106	7.78	N/A	3.7	29	<1.0
MW-151	9/23/2005	6.96	139.8	1.30	N/A	50	190	<1.0
	12/7/2005	7.35	72	3.63	N/A	41	160	<1.0
	3/15/2006	8.23	111	4.41	N/A	<1.0	4.3	<1.0
	6/14/2006	7.15	40	2.46	N/A	36	160	<1.0
	9/27/2006	7.37	91.1	2.57	N/A	46	240	<1.0
	11/21/2006	7.41	247	3.39	1.0	11	100	<1.0
	12/21/2006	7.16	31.1	1.41	1.3	35	240	<1.0
	7/16/2004	7.16	334	0.96	<1	3.1	5.1	<1.0
	8/16/2004	7.26	360	0.40	8.2	2.6	5.4	<1.0
	10/18/2004	7.11	236	0.26	<1.0	3.1	5.4	<1.0
	11/19/2004	7.10	254	3.02	13	3.5	4.7	<1.0
	12/21/2004	7.14	262	3.28	62	4.1	6.4	<1.0
Risk-Based Groundwater Concentrations*	1/24/2005	7.13	50.6	4.00	<1.0	3.3	5.0	<1.0
	3/16/2005	7.10	N/A	4.26	N/A	3.6	5.3	<1.0
	6/14/2005	7.14	112	0.89	N/A	2.8	3.6	<1.0
	9/23/2005	6.84	118	1.27	N/A	3.23	4.57	<1.0
	12/7/2005	7.11	60	2.41	N/A	4.6	4.8	<1.0
	3/15/2006	7.71	142	2.68	N/A	3.4	4.8	<1.0
	6/14/2006	7.12	76	1.85	N/A	2.6	4.6	<1.0
	9/27/2006	7.02	117.2	2.32	N/A	3.6	6.6	<1.0
	11/21/2006	7.27	266	4.26	<1.0	3.5	7.4	<1.0
	12/21/2006	6.97	36.3	3.70	<1.0	3.5	6.5	<1.0
	Risk-Based Groundwater Concentrations*				N/A	104,000	1,800	198

The samples collected on 7/16/2004 and 10/18/2004 are pre-injection samples.

\*Based on 10<sup>-4</sup> risk from vapor intrusion to indoor air.

DO = dissolved oxygen

mg/L = milligrams per liter

mV = millivolts

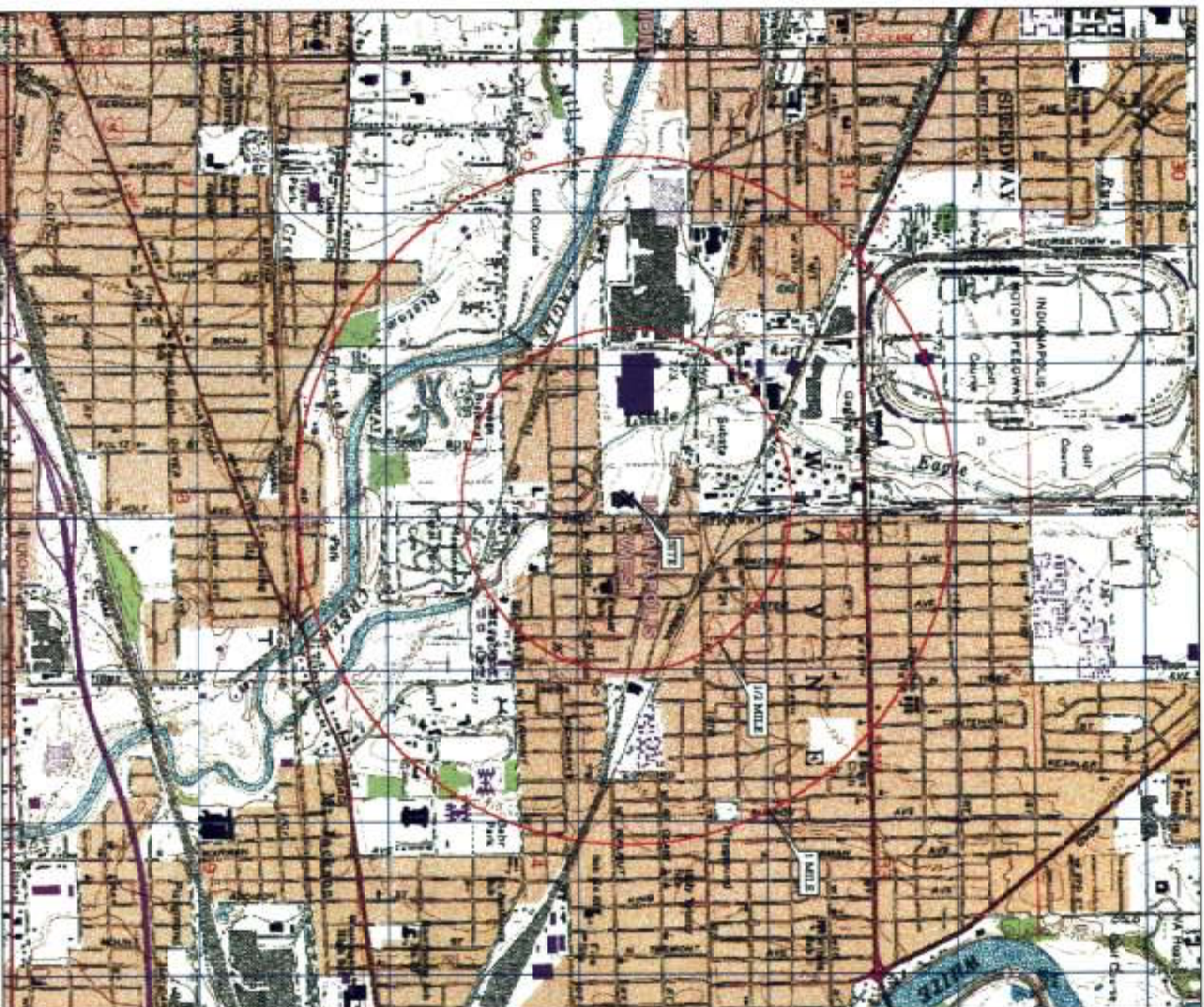
NA = Not Applicable

ORP = oxidation-reduction potential

TOC = total organic carbon

ug/L = micrograms per liter





3-D TopoQuad Copyright © 1999 Dalman Vermuth, SEI 8076 Series Data USGS

Scale 1:24,000 Dated 1:8 Datum NAD83

KEINAMIDA Environmental, Inc.

230 North College Avenue  
Indianapolis, Indiana 46202

(317) 685-6600 FAX (317) 685-6610



Figure 1  
Site Location Map

Former General Motors Corporation  
Allison Gas Turbine Plant 10  
700 North Olin Avenue  
Indianapolis, IN

Prepared by:

Approved by:

Date:

Project Number:

Becky Cassinelli

Kris Buckles

6/29/2002

20006

N



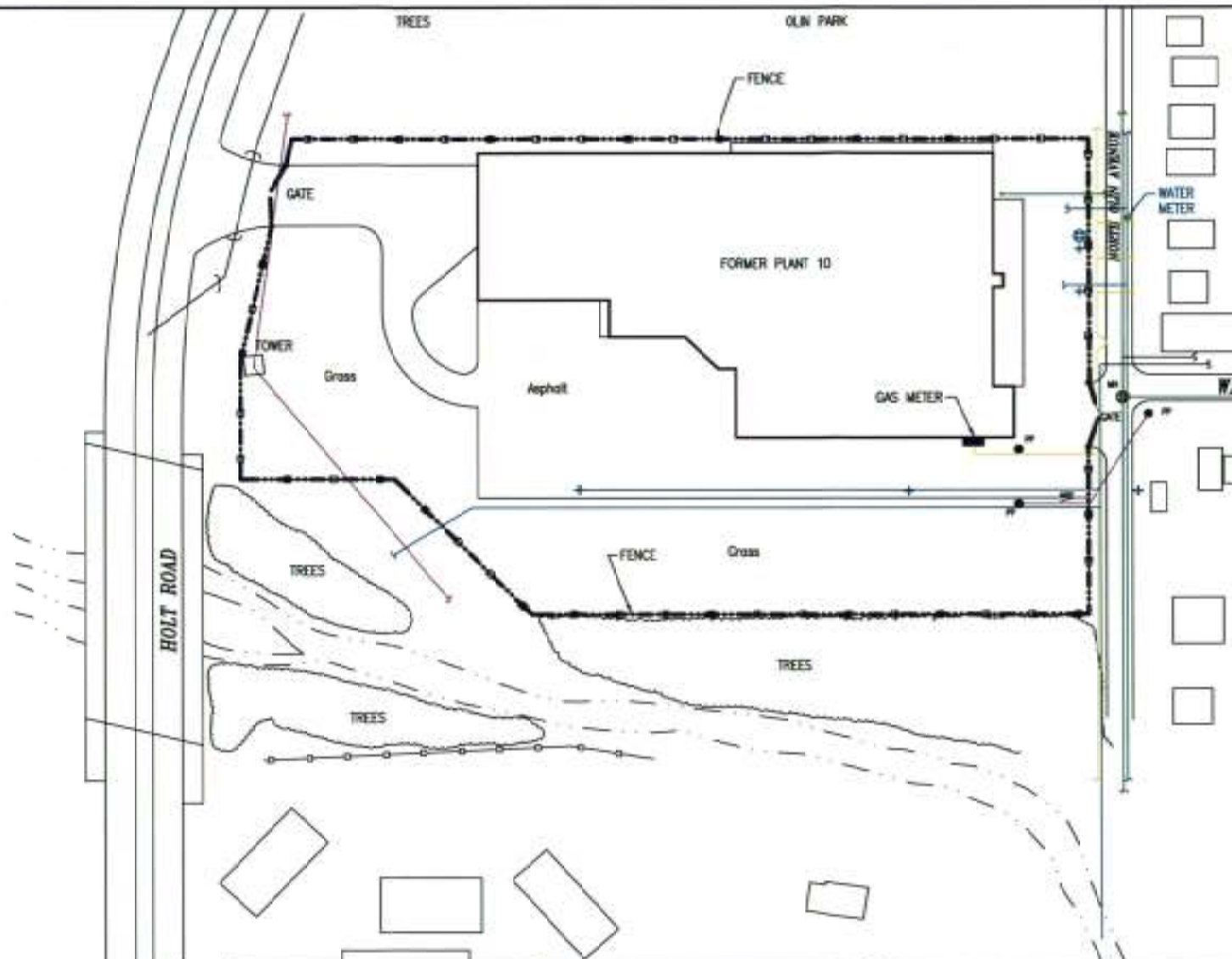




### LEGEND

- ⊕ MANHOLE
- + WATER HYDRANT
- P POWER POLE
- STORM SEWER / DITCH LINE
- GAS LINE
- WATER LINE
- OVERHEAD ELECTRIC
- SANITARY SEWER LINE
- - - PROPERTY LINE

100 0 100  
Approximate Scale in Feet



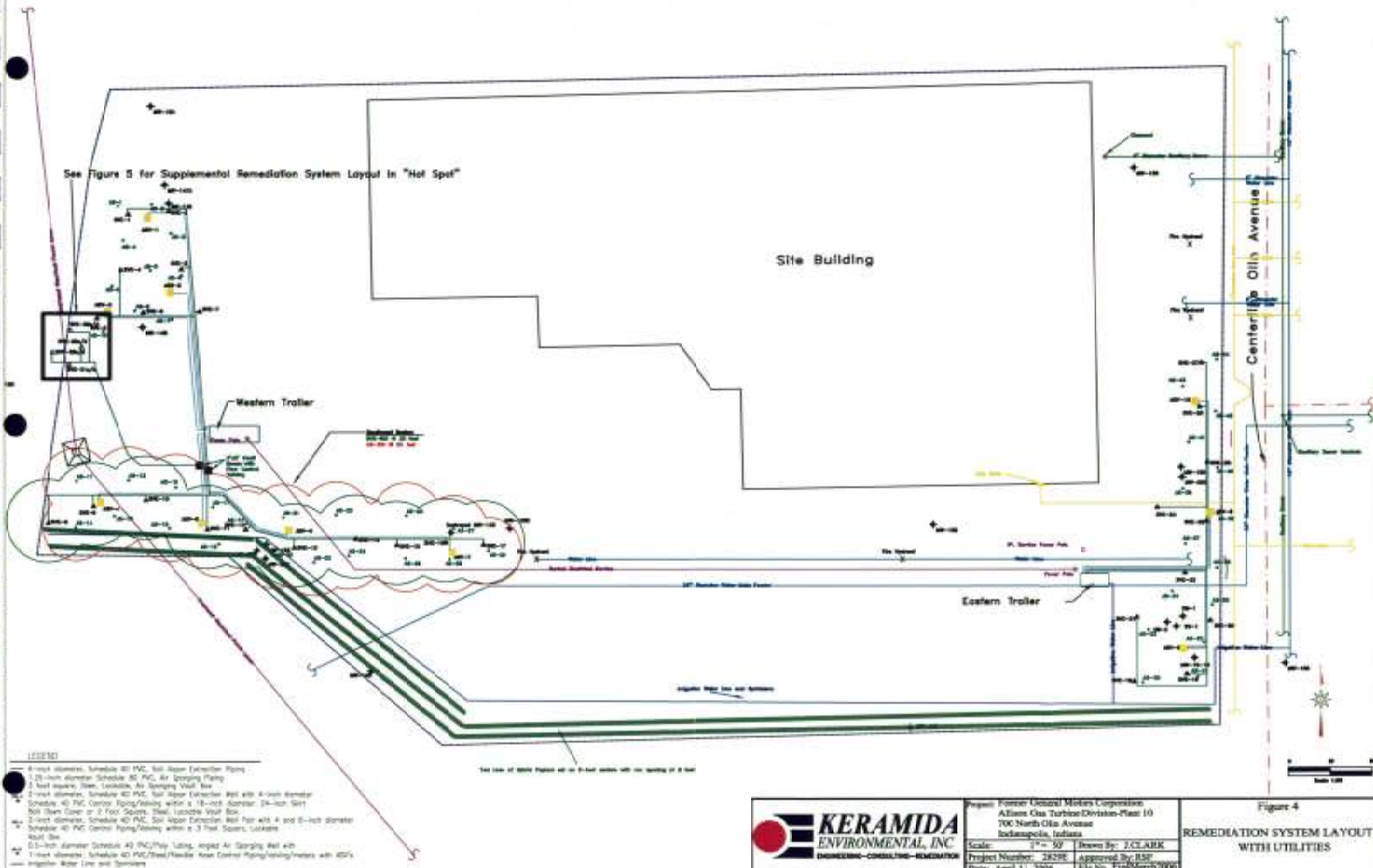
Project: Former General Motors Corporation  
Allison Gas Turbine Division-Plant 10  
700 North Olin Avenue  
Indianapolis, Indiana

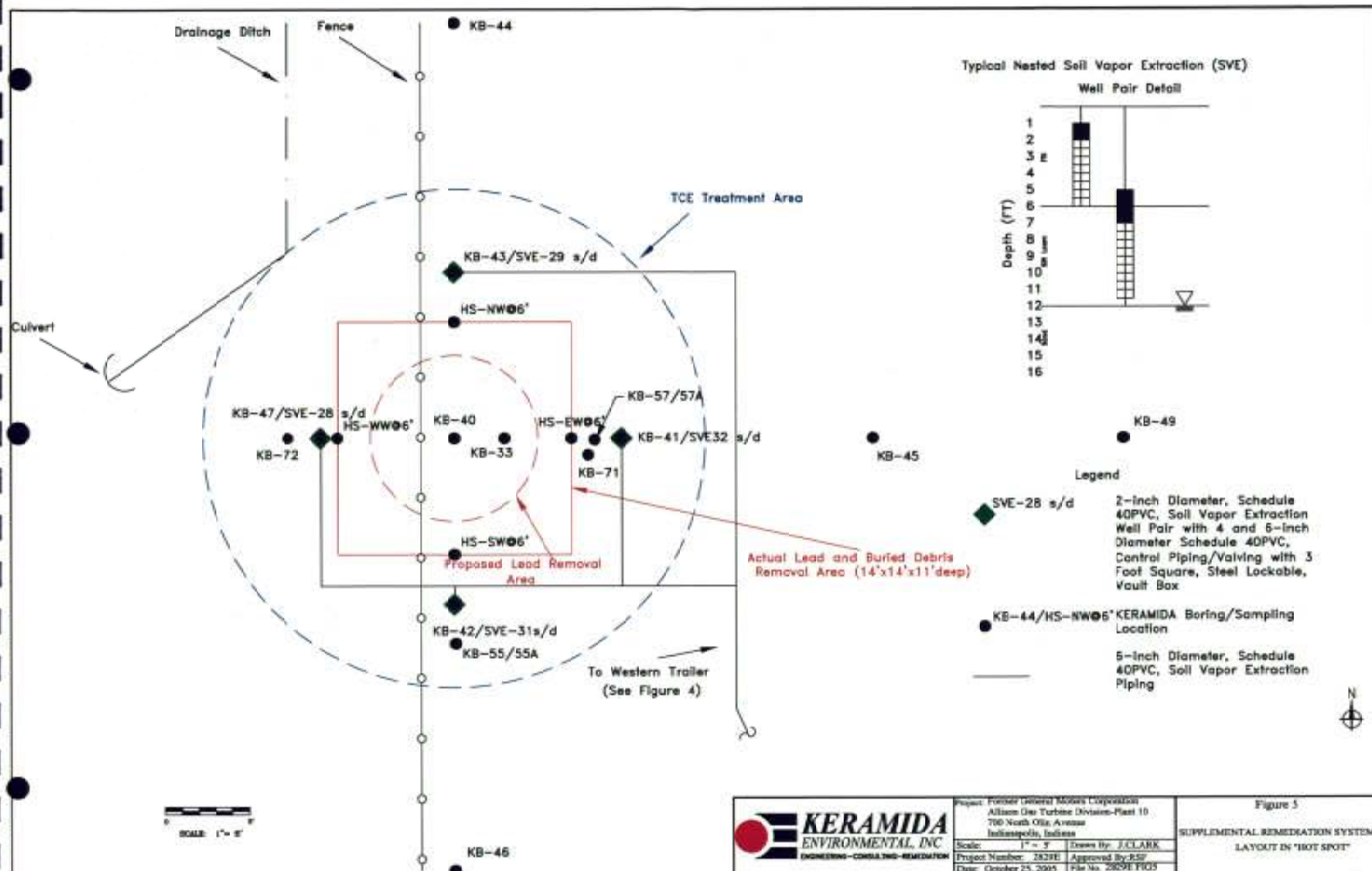
Scale: 1"=100'	Drawn By: MHU
Project Number: 2829E	Approved By: RSF
Date: October 25, 2005	File: 2829Efig2

**Figure 2**  
**Site Map**

















- - - - - Property Boundary  
 - - - - - Boundary Possibilities Surface  
 - - - - - Direction Toward North Side Lane



Project: Ferrar General Motors Corporation  
 Allison Gas Turbine Division-Plant 10  
 700 North Olds Avenue  
 Indianapolis, Indiana  
 Scale: 1" = 200'  
 Project Number: 24281-001  
 Date: January 19, 2007  
 Drawn By: T. CLARK  
 Approved By: RSP  
 File: 24281-001/ENR10000

Figure 8  
 Groundwater Potentiometric Surface  
 Map-Deep Wells, December, 2006

# KERAMIDA ENVIRONMENTAL, INC.

330 North College Avenue  
Indianapolis, Indiana 46202  
(317) 683-9500 - FAX (317) 683-0610

## OPERATION & MAINTENANCE LOG

Canaline Parts Groundwater Remediation System  
KERAMIDA PROJECT #2829E

Date: 1/4/07 Technician: N. LADMAN / J. Sullivan

### SOUTHWEST SYSTEM STATUS

SYE Blower (B-201) Operating? ☒ Yes ☐ No  
Air Compressor (AC-201) Operating? ☒ Yes ☐ No  
Air Springs Operating? ☒ Yes ☐ No  
Heater Operating? ☒ Yes ☐ No  
Ventilation Operating? ☒ Yes ☐ No

If yes, which vault? (ASV 4, 5, 6, 7)

### OPERATIONAL PARAMETERS

#### SYE System

Influent Vacuum (PI-201)	<u>-13</u>	Inches of H <sub>2</sub> O
Influent Air Temperature (TI-201)	<u>49</u>	°F
Influent Air Flowrate (PI-201)	<u>49</u>	scfm
Ambient Air Flowrate (PI-202)	<u>22</u>	scfm
Particulate Filter Inlet Vacuum (PI-202)	<u>2.8</u>	Inches of H <sub>2</sub> O
Particulate Filter Outlet Vacuum (PI-203)	<u>1.200</u>	Inches of H <sub>2</sub> O
Effluent Air Pressure (PI-204)	<u>1.000</u>	scfm
Effluent Air Flowrate (PI-203)	<u>80</u>	°F
Effluent Air Temperature (TI-202)	<u>19</u>	amps
Blower Current (B-201)	<u>362.08</u>	hours
Blower Hours (B-201)		

#### Air Sparging System

Air Injection Pressure ASV-4 (PI-207)	<u>39</u>	psi
Air Injection Flowrate ASV-4 (PI-204)	<u>5</u>	scfm
Air Injection Pressure ASV-5 (PI-208)	<u>30</u>	psi
Air Injection Flowrate ASV-5 (PI-205)	<u>N/A</u>	scfm
Air Injection Pressure ASV-6 (PI-209)	<u>37</u>	psi
Air Injection Flowrate ASV-6 (PI-206)	<u>5</u>	scfm
Air Injection Pressure ASV-7 (PI-210)	<u>30</u>	psi
Air Injection Flowrate ASV-7 (PI-207)	<u>15</u>	scfm
Regulator Pressure (PI-206)	<u>40</u>	psi
Compressor Pressure (PI-205)	<u>100</u>	psi
Compressor Air Temperature (TI-203)	<u>69</u>	°F
Compressor Air Temperature on AC-201 display unit	<u>100</u>	°F
Compressor Load Hours AC-201 display unit	<u>10372</u>	hours
Compressor Current (AC-201)	<u>24</u>	amps

### MAINTENANCE PARAMETERS:

Monthly Effluent Vapor Sample Collected? ☒ Yes ☐ No  
SYE Knockout Tanks Drained? ☒ Yes ☐ No  
Blower Dilution Air Filter (FS-201) Cleaned? ☒ Yes ☐ No Changed? ☒ Yes ☐ No  
Blower In-line Air Filter (PF-201) Cleaned? ☒ Yes ☐ No Changed? ☒ Yes ☐ No  
Blower Lubricated? ☒ Yes ☐ No  
Blower Oil Changed? ☒ Yes ☐ No  
Compressor In-line Air Filter (PF-202) Changed? ☒ Yes ☐ No  
Compressor Filter Changed? ☒ Yes ☐ No  
Compressor Oil Changed? ☒ Yes ☐ No

If yes, name: SW SVE 6/4/05/51

Pressure loss across (PI-202 and PI-203) not to exceed 14 inches of H<sub>2</sub>O.  
Lubricate weekly.  
Change every 1,500 hours.  
Changing frequency based on indicators on filter housings.  
Change every 1,500 hours.  
Change every 4,000 hours.

### NOTES:




 Date 12/29/06 Technician W. Rodman

## SOUTHWEST SYSTEM STATUS

 SVE Blower (B-201) Operating? (Yes/No) (Yes/No)  
 Air Compressor (AC-201) Operating? (Yes/No) (Yes/No)  
 Air Squeezes Operating? (Yes/No) (Yes/No)  
 Heater Operating? (Yes/No) (Yes/No)  
 Ventilation Operating? (Yes/No) (Yes/No)

If yes, which value? (ASV 4, 5, 6, or 7)

## OPERATIONAL PARAMETERS

## SVE System

Influent Vacuum (PI-201)	<u>-14</u>	inches of H <sub>2</sub> O
Influent Air Temperature (TI-201)	<u>45</u>	°F
Induced Air Flowrate (FI-201)	<u>    </u>	scfm
Ambient Air Flowrate (FI-202)	<u>    </u>	scfm
Particulate Filter Inlet Vacuum (PI-202)	<u>24</u>	Inches of H <sub>2</sub> O
Particulate Filter Outlet Vacuum (PI-203)	<u>30</u>	Inches of H <sub>2</sub> O
Effluent Air Pressure (PI-204)	<u>1</u>	Inches of H <sub>2</sub> O
Effluent Air Flowrate (FI-203)	<u>10 cfm</u>	scfm
Effluent Air Temperature (TI-202)	<u>80</u>	°F
Blower Current (B-201)	<u>20</u>	amps
Blower Hours (B-201)	<u>34202</u>	hours

## Air Sparging System

Air Injection Pressure ASV-4 (PI-207)	<u>34</u>	psi
Air Injection Flowrate ASV-4 (FI-204)	<u>5</u>	scfm
Air Injection Pressure ASV-5 (PI-208)	<u>30</u>	psi
Air Injection Flowrate ASV-5 (FI-205)	<u>N/A</u>	scfm
Air Injection Pressure ASV-6 (PI-209)	<u>30</u>	psi
Air Injection Flowrate ASV-6 (FI-206)	<u>5</u>	scfm
Air Injection Pressure ASV-7 (PI-210)	<u>30</u>	psi
Air Injection Flowrate ASV-7 (FI-207)	<u>15</u>	scfm
Regulator Pressure (PI-206)	<u>33</u>	psi
Compressor Pressure (PI-202)	<u>102</u>	psi
Compressor Air Temperature (TI-203)	<u>55</u>	°F
Compressor Air Temperature on AC-201 display unit	<u>184</u>	°F
Compressor Load Hours AC-201 display unit	<u>10321</u>	hours
Compressor Current (AC-201)	<u>24</u>	amps

hours TOT = 31917

## MAINTENANCE PARAMETERS

Monthly Effluent Vapor Sample Collected? (Yes/No) <u>(Yes/No)</u>	If yes, name: _____
SVE Kasecoat Tanks Drained? (Yes/No) <u>(Yes/No)</u>	
Blower Dilution Air Filter (FS-201) Cleaned? (Yes/No) <u>(Yes/No)</u>	Pressure loss across (PI-202 and PI-203) not to exceed 14 inches of H <sub>2</sub> O.
Blower In-line Air Filter (PI-201) Cleaned? (Yes/No) <u>(Yes/No)</u>	Lubricate weekly.
Blower Lubricated? (Yes/No) <u>(Yes/No)</u>	Change every 1,000 hours.
Blower Oil Changed? (Yes/No) <u>(Yes/No)</u>	Change frequency based on indicators on filter housings.
Compressor In-line Air Filters (PI-202) Changed? (Yes/No) <u>(Yes/No)</u>	Change every 1,500 hours.
Compressor Filter Changed? (Yes/No) <u>(Yes/No)</u>	Change every 4,000 hours.
Compressor Oil Changed? (Yes/No) <u>(Yes/No)</u>	

## NOTES:

Test Station AC unit on 12/21/06. 185  
 System down under 12/25/06. 2



Date 12-18-06 Technician Hopper

SOUTHWEST SYSTEM STATUS

SVE Blower (B-201) Operating? (Yes) No  
Air Compressor (AC-201) Operating? (Yes) No  
Air Spargers Operating? (Yes) No  
Heater Operating? (Yes) No  
Ventilation Operating? (Yes) No

If yes, which result? (ASV 4, 5, 6, or 7)

OPERATIONAL PARAMETERS

SVE System

Influent Vacuum (PI-201)	<u>14</u>	inches of H <sub>2</sub> O
Influent Air Temperature (TI-201)	<u>46</u>	°F
Influent Air Flowrate (FI-201)	<u>-</u>	scfm
Ambient Air Flowrate (FI-202)	<u>-</u>	scfm
Particulate Filter Inlet Vacuum (PI-202)	<u>32</u>	inches of H <sub>2</sub> O
Particulate Filter Outlet Vacuum (PI-203)	<u>36.5</u>	inches of H <sub>2</sub> O
Effluent Air Pressure (PI-204)	<u>0</u>	inches of H <sub>2</sub> O
Effluent Air Flowrate (FI-205)	<u>1000</u>	scfm
Effluent Air Temperature (TI-205)	<u>80</u>	°F
Blower Current (B-201)	<u>19.5</u>	amps
Blower Hours (B-201)	<u>36.12</u>	hours

Air Sparging System

Air Injection Pressure ASV-4 (PI-207)	<u>34</u>	psi
Air Injection Flowrate ASV-4 (FI-204)	<u>5</u>	scfm
Air Injection Pressure ASV-5 (FI-208)	<u>33</u>	psi
Air Injection Flowrate ASV-5 (FI-205)	<u>N/A</u>	scfm
Air Injection Pressure ASV-6 (FI-209)	<u>38</u>	psi
Air Injection Flowrate ASV-6 (FI-206)	<u>0</u>	scfm
Air Injection Pressure ASV-7 (FI-210)	<u>31</u>	psi
Air Injection Flowrate ASV-7 (FI-207)	<u>17</u>	scfm
Regulator Pressure (PI-206)	<u>34</u>	psi
Compressor Pressure (PI-205)	<u>10.5</u>	psi
Compressor Air Temperature (TI-203)	<u>32</u>	°F
Compressor Air Temperature on AC-201 display unit	<u>186</u>	°F
Compressor Load Hours AC-201 display unit	<u>10297</u>	hours
Compressor Current (AC-201)	<u>24</u>	amps

Total 81828

MAINTENANCE PARAMETERS:

Monthly Effluent Vapor Sample Collected? (Yes) No  
SVE Kerosene Tanks Drained? (Yes) No  
Blower Dilution Air Filter (PS-201) Cleaned? (Yes) No Changed? (Yes) No  
Blower In-line Air Filter (PF-201) Cleaned? (Yes) No Changed? (Yes) No  
Blower Lubricated? (Yes) No  
Blower Oil Changed? (Yes) No  
Compressor In-line Air Filters (PF-202) Changed? (Yes) No  
Compressor Filter Changed? (Yes) No  
Compressor Oil Changed? (Yes) No

If yes, name \_\_\_\_\_

Pressure loss across (PI-202 and PI-203) not to exceed 14 inches of H<sub>2</sub>O.  
Lubricate weekly.  
Change every 1,000 hours.  
Changing frequency based on indicators on filter housings.  
Change every 1,500 hours.  
Change every 4,000 hours.

NOTES: TIGHTENED BELTS

PARTICULATE FILTER SNAKES BAD

CHANGED FILTER / OLD FILTER SHREDDED



# KERAMIDA ENVIRONMENTAL, INC.

330 North College Avenue  
Indianapolis, Indiana 46202  
(317) 683-6600 - FAX (317) 683-6610

## OPERATION & MAINTENANCE LOG Granite Park Groundwater Remediation System KERAMIDA PROJECT #2029E

Date: 12/5/06 Technician: A. Harper / S. Conday

### SOUTHWEST SYSTEM STATUS

SVL Blower (B-201) Operating? ☒ (Y) / ☐ (N)  
Air Compressor (AC-201) Operating? ☒ (Y) / ☐ (N)  
Air Sponges Operating? ☒ (Y) / ☐ (N)  
Heater Operating? ☒ (Y) / ☐ (N)  
Ventilation Operating? ☒ (Y) / ☐ (N)

If yes, which valve? (ASV #, B, or V)

### OPERATIONAL PARAMETERS

#### SVL System

Influent Vacuum (PI-201)	<u>15.5</u>	Inches of H2O
Influent Air Temperature (TI-201)	<u>3.6</u>	°F
Influent Air Flowrate (FI-201)		scfm
Ambient Air Flowrate (FI-202)	<u>33.5</u>	Inches of H2O
Particulate Filter Inlet Vacuum (PI-203)	<u>3.8</u>	Inches of H2O
Particulate Filter Outlet Vacuum (PI-203)	<u>1</u>	Inches of H2O
Effluent Air Pressure (PI-204)	<u>1.6</u>	scfm
Effluent Air Flowrate (FI-203)	<u>6.0</u>	°F
Effluent Air Temperature (TI-202)	<u>3.0</u>	amps
Blower Current (B-201)	<u>3580.0</u>	hours
Blower Hours (B-201)		

#### Air Sparging System

Air Injection Pressure ASV-4 (PI-207)	<u>34.5</u>	psi
Air Injection Flowrate ASV-4 (FI-204)	<u>5</u>	scfm
Air Injection Pressure ASV-5 (PI-208)	<u>3.4</u>	psi
Air Injection Flowrate ASV-5 (FI-205)	<u>N/A</u>	scfm
Air Injection Pressure ASV-6 (PI-209)	<u>3.6</u>	psi
Air Injection Flowrate ASV-6 (FI-206)	<u>6</u>	scfm
Air Injection Pressure ASV-7 (PI-210)	<u>3.5</u>	psi
Air Injection Flowrate ASV-7 (FI-207)	<u>1.5</u>	scfm
Regulator Pressure (PI-206)	<u>3.4</u>	psi
Compressor Pressure (PI-205)	<u>10.7</u>	°F
Compressor Air Temperature (TI-203)	<u>18.9</u>	°F
Compressor Air Temperature on AC-201 display unit	<u>10.247</u>	hours
Compressor Load Hours AC-201 display unit	<u>24.5/L</u>	amps
Compressor Current (AC-201)		

total 3182.8 hr.

### MAINTENANCE PARAMETERS

Monthly Effluent Vapor Sample Collected? ☒ (Yes) / ☐ (No)

SVL Kerosene Tank Drained? ☒ (Yes) / ☐ (No)

Blower Dilution Air Filter (FS-201) Cleaned? ☒ (Yes) / ☐ (No) Changed? ☒ (Yes) / ☐ (No)

Blower In-Line Air Filter (PF-201) Cleaned? ☒ (Yes) / ☐ (No) Changed? ☒ (Yes) / ☐ (No)

Blower Lubricated? ☒ (Yes) / ☐ (No)

Blower Oil Changed? ☒ (Yes) / ☐ (No)

Compressor In-Line Air Filters (PF-202) Changed? ☒ (Yes) / ☐ (No)

Compressor Filter Changed? ☒ (Yes) / ☐ (No)

Compressor Oil Changed? ☒ (Yes) / ☐ (No)

If yes, name: \_\_\_\_\_

Pressure loss across (PI-202 and PI-203) not to exceed 14 inches of H<sub>2</sub>O.

Lubricate weekly.

Change every 1,000 hours.

Changing frequency based on indications on filter housings.

Change every 1,500 hours.

Change every 4,000 hours.

NOTES: System running as designed with no problems observed.

# KERAMIDA ENVIRONMENTAL, INC.

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Indianapolis, Indiana 46202  
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## OPERATION & MAINTENANCE LOG

Genieie Parts Groundwater Remediation System  
KERAMIDA PROJECT #1339E

Date: 12/1/06 Technician: W. L. BARNETT, A. THORPEL

### SOUTHWEST SYSTEM STATUS

SEVE Blower (B-201) Operating? (Yes/No) (No)  
Air Compressor (AC-201) Operating? (Yes/No) (No)  
Air Sparger Operating? (Yes/No) (No)  
Heater Operating? (Yes/No) (No)  
Ventilation Operating? (Yes/No) (No)

If yes, which vault? (ASV 4, 5, 6, or 7)

### OPERATIONAL PARAMETERS

#### SEVE System

Inductant Vacuum (PI-201)	<u>-18</u> inches of H <sub>2</sub> O
Inductant Air Temperature (TI-201)	<u>46</u> °F
Inductant Air Flowrate (FI-201)	<u>—</u> scfm
Ambient Air Flowrate (FI-202)	<u>—</u> scfm
Particulate Filter Inlet Vacuum (PI-203)	<u>36</u> inches of H <sub>2</sub> O
Particulate Filter Outlet Vacuum (PI-203)	<u>42</u> inches of H <sub>2</sub> O
Effluent Air Pressure (PI-204)	<u>1</u> inches of H <sub>2</sub> O
Effluent Air Flowrate (FI-203)	<u>10.7</u> scfm
Effluent Air Temperature (TI-203)	<u>80</u> °F
Blower Current (B-201)	<u>2.0</u> amps
Blower Hours (B-201)	<u>35705</u> hours

#### Air Sparging System

Air Injection Pressure ASV-4 (PI-207)	<u>35</u> psi
Air Injection Flowrate ASV-4 (FI-204)	<u>3</u> scfm
Air Injection Pressure ASV-5 (PI-208)	<u>36</u> psi
Air Injection Flowrate ASV-5 (FI-205)	<u>N/A</u> scfm
Air Injection Pressure ASV-6 (PI-209)	<u>38</u> psi
Air Injection Flowrate ASV-6 (FI-206)	<u>9</u> scfm
Air Injection Pressure ASV-7 (PI-210)	<u>32</u> psi
Air Injection Flowrate ASV-7 (FI-207)	<u>15</u> scfm
Regulator Pressure (PI-206)	<u>36</u> psi
Compressor Pressure (PI-205)	<u>102</u> psi
Compressor Air Temperature (TI-205)	<u>60</u> °F
Compressor Air Temperature on AC-201 display unit	<u>186</u> °F
Compressor Load Hours AC-201 display unit	<u>16770</u> hours
Compressor Current (AC-201)	<u>24</u> amps

TOTAL Hrs. 31734

### MAINTENANCE PARAMETERS:

Monthly Effluent Vapor Sample Collected? (Yes/No) (No)  
SEVE Knockout Tanks Drained? (Yes/No) (No)  
Blower Dilution Air Filter (FS-201) Changed? (Yes/No) (No)  
Blower In-line Air Filter (FI-201) Cleaned? (Yes/No) (No)  
Blower Lubricated? (Yes/No) (No)  
Blower Oil Changed? (Yes/No) (No)  
Compressor In-line Air Filter (FI-202) Changed? (Yes/No) (No)  
Compressor Filter Changed? (Yes/No) (No)  
Compressor Oil Changed? (Yes/No) (No)

If yes, name: \_\_\_\_\_  
Pressure loss across (PI-202 and PI-203) not to exceed 14 inches of H<sub>2</sub>O.  
Lubricate weekly.  
Change every 1,000 hours.  
Changing frequency based on indicators on filter housings.  
Change every 1,500 hours.  
Change every 4,000 hours.

### NOTES: BREAKER CB45A WAS TRIPPED DURING REPAIR

RE-ARMED ONLY THREE TRIP OF NEW BREAKERS  
PUT IN VENTURE & BREAKER TO RETURN OIL  
CHANGED BREAKER INDICATOR BUILT ON CENTRAL PANEL




 Date: 11/22/06 Technician: M. Edwards

## SOUTHWEST SYSTEM STATUS

 SVE Blower (B-201) Operating? (Yes/No)  
 Air Compressor (AC-201) Operating? (Yes/No)  
 Air Spargers Operating? (Yes/No)  
 Heater Operating? (Yes/No)  
 Ventilation Operating? (Yes/No)

 If yes, which valve? (ASV 4, 5, 6, or 7)

## OPERATIONAL PARAMETERS

## SVE System

Influent Vacuum (PI-201)	<u>-17</u>	inches of H <sub>2</sub> O
Influent Air Temperature (TI-201)	<u>50</u>	°F
Influent Air Flowrate (FI-201)	<u>—</u>	scfm
Ambient Air Flowrate (FI-202)	<u>—</u>	scfm
Particulate Filter Inlet Vacuum (PI-202)	<u>37</u>	inches of H <sub>2</sub> O
Particulate Filter Outlet Vacuum (PI-203)	<u>41</u>	inches of H <sub>2</sub> O
Effluent Air Pressure (PI-204)	<u>1</u>	inches of H <sub>2</sub> O - PSI
Effluent Air Flowrate (FI-203)	<u>1000</u>	scfm
Effluent Air Temperature (TI-202)	<u>88</u>	°F
Blower Current (B-201)	<u>20</u>	amps
Blower Hours (B-201)	<u>351681</u>	hours

## Air Sparging System

Air Injection Pressure ASV-4 (PI-207)	<u>35</u>	psi
Air Injection Flowrate ASV-4 (FI-204)	<u>3</u>	scfm
Air Injection Pressure ASV-3 (PI-208)	<u>34</u>	psi
Air Injection Flowrate ASV-3 (FI-205)	<u>N/A</u>	scfm
Air Injection Pressure ASV-6 (PI-209)	<u>30</u>	psi
Air Injection Flowrate ASV-6 (FI-206)	<u>6</u>	scfm
Air Injection Pressure ASV-7 (PI-210)	<u>29</u>	psi
Air Injection Flowrate ASV-7 (FI-207)	<u>15</u>	scfm
Regulator Pressure (PI-206)	<u>34</u>	psi
Compressor Pressure (PI-205)	<u>124</u>	psi
Compressor Air Temperature (TI-203)	<u>100</u>	°F
Compressor Air Temperature on AC-201 display unit	<u>185</u>	°F
Compressor Load Hours AC-201 display unit	<u>10249</u>	hours
Compressor Current (AC-201)	<u>25</u>	amps

TOT = 31733

## MAINTENANCE PARAMETERS:

Monthly Effluent Vape Sample Collected? <u>(Yes/No)</u>	If yes, name: _____
SVE Knocered Tank Drained? <u>(Yes/No)</u>	
Blower Dilution Air Filter (FI-201) Cleaned? <u>(Yes/No)</u> Changed? <u>(Yes/No)</u>	
Blower In-line Air Filter (FI-201) Cleaned? <u>(Yes/No)</u> Changed? <u>(Yes/No)</u>	
Blower Lubricated? <u>(Yes/No)</u>	
Blower Oil Changed? <u>(Yes/No)</u>	
Compressor In-line Air Filter (FI-203) Changed? <u>(Yes/No)</u>	
Compressor Filter Changed? <u>(Yes/No)</u> <u>CLF41-6P</u>	
Compressor Oil Changed? <u>(Yes/No)</u>	

Pressure loss across (FI-202 and FI-203) not to exceed 14 inches of H<sub>2</sub>O.  
 Lubricate weekly.  
 Change every 1,000 hours.  
 Changing frequency based on indication on filter housings.  
 Change every 1,500 hours.  
 Change every 4,000 hours.

## NOTES:

# KIRAMIDA ENVIRONMENTAL, INC.

330 North College Avenue  
Indianapolis, Indiana 46202  
Q17) 683-6600 - FAX Q17) 683-6610

## OPERATION & MAINTENANCE LOG General Parts Groundwater Remediation System KIRAMIDA PROJECT #1829E

Date: 11/17/16 Technician: W. Loman A. Heider

### SOUTHWEST SYSTEM STATUS

SVE Blower (B-201) Operating? (Yes/No)  
Air Compressor (AC-201) Operating? (Yes/No)  
Air Sparger Operating? (Yes/No)  
Heater Operating? (Yes/No)  
Ventilation Operating? (Yes/No)

If yes, which fault? (ASV 4, 5, 6, or 7)

### OPERATIONAL PARAMETERS

#### SVE System

Influent Vacuum (PI-201) -20 inches of H<sub>2</sub>O  
Influent Air Temperature (TI-201) 47 °F  
Influent Air Flowrate (FI-201) 1 scfm  
Ambient Air Flowrate (FI-202) 39 scfm  
Particulate Filter Inlet Vacuum (PI-202) 45 inches of H<sub>2</sub>O  
Particulate Filter Outlet Vacuum (PI-203) 1 inches of H<sub>2</sub>O  
Effluent Air Pressure (PI-204) 1,000 scfm  
Effluent Air Flowrate (FI-205) 78 °F  
Effluent Air Temperature (TI-202) 24 °F  
Blower Current (B-201) 36.5 amps  
Blower Hours (B-201) 57 hours

#### Air Sparging System

Air Injection Pressure ASV-4 (PI-207) 38 psi  
Air Injection Flowrate ASV-4 (FI-204) 3 scfm  
Air Injection Pressure ASV-5 (PI-208) 36 psi  
Air Injection Flowrate ASV-5 (FI-205) N/A scfm  
Air Injection Pressure ASV-6 (PI-209) 24 psi  
Air Injection Flowrate ASV-6 (FI-206) 5 scfm  
Air Injection Pressure ASV-7 (PI-210) 31 psi  
Air Injection Flowrate ASV-7 (FI-207) 13 scfm  
Regulator Pressure (PI-206) 102 psi  
Compressor Pressure (PI-205) 78 °F  
Compressor Air Temperature (TI-203) 103 °F  
Compressor Air Temperature on AC-201 display unit 103.31 hours  
Compressor Load Hours AC-201 display unit 24 sample  
Compressor Current (AC-201) 79-3161b

### MAINTENANCE PARAMETERS:

Monthly Effluent Vapor Sample Collected? (Yes/No) If yes, name: SW SVE for VOC & VC  
SVE Knockout Tanks Drained? (Yes/No)  
Blower Dilution Air Filter (FS-201) Cleaned? (Yes/No) Changed? (Yes/No)  
Blower In-line Air Filter (DF-201) Cleaned? (Yes/No) Changed? (Yes/No)  
Blower Lubricated? (Yes/No)  
Blower Oil Changed? (Yes/No)  
Compressor In-line Air Filters (PF-202) Changed? (Yes/No)  
Compressor Filter Changed? (Yes/No)  
Compressor Oil Changed? (Yes/No)

Pressure loss across (PI-202 and PI-203) not to exceed 14 inches of H<sub>2</sub>O.  
Lubricate weekly.  
Change every 1,000 hours.  
Changing frequency based on indicators on filter housings.  
Change every 1,500 hours.  
Change every 4,000 hours.

### NOTES:

Blower Run - High Water  
Compressor Not Operating. Low Pressure  
SVE Filter Off - Blow Air  
Opened to Blower Air Valve Influent not used - 17  
↳ no filter w/ high water



# KERAMIDA ENVIRONMENTAL, INC.

330 North College Avenue  
Indianapolis, Indiana 46202  
(317) 685-6600 • FAX (317) 685-6610

## OPERATION & MAINTENANCE LOG Genline Parts Groundwater Remediation System KERAMIDA PROJECT #1209E

Date: 11/7/00 Technician: W. Robinson

### SOUTHWEST SYSTEM STATUS

SVE Blower (B-201) Operating? (Yes/No)  
Air Compressor (AC-201) Operating? (Yes/No)  
Air Spargers Operating? (Yes/No)  
Heater Operating? (Yes/No)  
Ventilation Operating? (Yes/No)

If yes, which vault? (ASV 4, 5 or 7)

### OPERATIONAL PARAMETERS

#### SVE System

Inducent Vacuum (PI-201)  
Inducent Air Temperature (TI-201)  
Influent Air Flowrate (FI-201)  
Ambient Air Flowrate (FI-202)  
Particulate Filter Inlet Vacuum (PI-203)  
Particulate Filter Outlet Vacuum (PI-203)  
Effluent Air Pressure (PI-204)  
Effluent Air Flowrate (FI-203)  
Effluent Air Temperature (TI-202)  
Blower Current (BI-201)  
Blower Hours (BI-201)

18	inches of H <sub>2</sub> O
72	"
	scfm
	scfm
40	inches of H <sub>2</sub> O
40	inches of H <sub>2</sub> O
1	inches of H <sub>2</sub> O
1000	scfm
85	"
20	amps
35251	hours

#### Air Sparging System

Air Injection Pressure ASV-4 (PI-207)  
Air Injection Flowrate ASV-4 (FI-204)  
Air Injection Pressure ASV-5 (PI-208)  
Air Injection Flowrate ASV-5 (FI-205)  
Air Injection Pressure ASV-6 (PI-209)  
Air Injection Flowrate ASV-6 (FI-206)  
Air Injection Pressure ASV-7 (PI-210)  
Air Injection Flowrate ASV-7 (FI-207)  
Regulator Pressure (PI-206)  
Compressor Pressure (PI-205)  
Compressor Air Temperature (TI-203)  
Compressor Air Temperature on AC-201 display unit  
Compressor Load Hours AC-201 display unit  
Compressor Current (AC-201)

38	psi
34	scfm
34	psi
8	scfm
34	psi
5	scfm
35	psi
15	scfm
35	psi
104	psi
99	"
185	"
10112	hours
25	amps

total TOT = 21305

### MAINTENANCE PARAMETERS

Monthly Effluent Vapor Sample Collected? (Yes/No)  
SVE Knockout Tanks Drained? (Yes/No)  
Blower Dilution Air Filter (FS-201) Cleaned? (Yes/No) Changed? (Yes/No)  
Blower In-line Air Filter (PI-201) Cleaned? (Yes/No) Changed? (Yes/No)  
Blower Lubricated? (Yes/No)  
Blower Oil Changed? (Yes/No)  
Compressor In-line Air Filter (PI-202) Changed? (Yes/No)  
Compressor Filter Changed? (Yes/No)  
Compressor Oil Changed? (Yes/No)

If yes, name: \_\_\_\_\_  
Pressure loss across (PI-202 and PI-203) not to exceed 14 inches of H<sub>2</sub>O.  
Lubricate weekly.  
Change every 1,000 hours.  
Changing frequency based on indication on filter housing.  
Change every 1,500 hours.  
Change every 4,000 hours.

### NOTES:





# KERAMIDA ENVIRONMENTAL, INC.

330 South College Avenue  
Indianapolis, Indiana 46202  
(317) 685-6000 - FAX (317) 685-6610

## OPERATION & MAINTENANCE LOG

Gasoline Parts Groundwater Remediation System  
KERAMIDA PROJECT #282E

Date: 10/31/06 Technician: R. Fedorchuk

### SOUTHWEST SYSTEM STATUS

SVE Blower (B-201) Operating? ☒ Yes / ☒ No Rechecked  
Air Compressor (AC-201) Operating? ☒ Yes / ☒ No  
Air Spargers Operating? ☒ Yes / ☒ No  
Heater Operating? ☒ Yes / ☒ No  
Ventilation Operating? ☒ Yes / ☒ No

If yes, which vault? (ASV 4, 5, 6, or 7) 7

### OPERATIONAL PARAMETERS

#### SVE System

Influent Vacuum (PI-201)	<u>16.5</u>	inches of H <sub>2</sub> O
Influent Air Temperature (TI-201)	<u>48</u>	°F
Influent Air Flowrate (FI-201)	<u>—</u>	scfm
Ambient Air Flowrate (FI-202)	<u>30</u>	scfm
Particulate Filter Inlet Vacuum (PI-202)	<u>3.0</u>	inches of H <sub>2</sub> O
Particulate Filter Outlet Vacuum (PI-202)	<u>3.0</u>	inches of H <sub>2</sub> O
Ethylene Air Pressure (PI-204)	<u>0</u>	inches of H <sub>2</sub> O
Ethylene Air Flowrate (FI-203)	<u>1400</u>	scfm
Ethylene Air Temperature (TI-203)	<u>48</u>	°F
Blower Current (B-201)	<u>20</u>	amps
Blower Hours (B-201)	<u>35135</u>	hours

#### Air Sparging System

Air Injection Pressure ASV-4 (PI-207)	<u>38</u>	psi
Air Injection Flowrate ASV-4 (FI-204)	<u>1</u>	scfm
Air Injection Pressure ASV-5 (PI-208)	<u>38</u>	psi
Air Injection Flowrate ASV-5 (FI-205)	<u>1</u>	scfm
Air Injection Pressure ASV-6 (PI-209)	<u>38</u>	psi
Air Injection Flowrate ASV-6 (FI-206)	<u>1</u>	scfm
Air Injection Pressure ASV-7 (PI-210)	<u>38</u>	psi
Air Injection Flowrate ASV-7 (FI-207)	<u>1</u>	scfm
Regulator Pressure (PI-206)	<u>38</u>	psi
Compressor Pressure (PI-205)	<u>107</u>	psi
Compressor Air Temperature (TI-203)	<u>58</u>	°F
Compressor Air Temperature on AC-201 display unit	<u>100</u>	°F
Compressor Load Hours AC-201 display unit	<u>10070</u>	hours
Compressor Current (AC-201)	<u>25</u>	amps
	<u>15</u>	load
		<u>31647061</u>

### MAINTENANCE PARAMETERS

Monthly Effluent Vapor Sample Collected? ☒ Yes / ☒ No SUE Effluent  
SVE Knockout Tanks Drained? ☒ Yes / ☒ No  
Blower Dilution Air Filter (FS-201) Cleaned? ☒ Yes / ☒ No Changed?  
Blower In-line Air Filter (PI-201) Cleaned? ☒ Yes / ☒ No Changed?  
Blower Lubricated? ☒ Yes / ☒ No  
Blower Oil Changed? ☒ Yes / ☒ No  
Compressor In-line Air Filters (PI-202) Changed? ☒ Yes / ☒ No  
Compressor Filter Changed? ☒ Yes / ☒ No  
Compressor Oil Changed? ☒ Yes / ☒ No

If yes, name: SUE Effluent  
Pressure loss across (PI-202 and PI-203) not to exceed 14 inches of H<sub>2</sub>O.  
Lubricate weekly.  
Change every 1,000 hours.  
Changing frequency based on indications on filter housings.  
Change every 1,500 hours.  
Change every 4,000 hours.

### NOTES:

• Off-high level since 10/19/06, 1<sup>st</sup> good  
• Replaced SVEs to 10440 - 15000s Gasometer - 1600-20000  
↳ (SVEs 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 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430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022, 1023, 1024, 1025, 1026, 1027, 1028, 1029, 1030, 1031, 1032, 1033, 1034, 1035, 1036, 1037, 1038, 1039, 1040, 1041, 1042, 1043, 1044, 1045, 1046, 1047, 1048, 1049, 1050, 1051, 1052, 1053, 1054, 1055, 1056, 1057, 1058, 1059, 1060, 1061, 1062, 1063, 1064, 1065, 1066, 1067, 1068, 1069, 1070, 1071, 1072, 1073, 1074, 1075, 1076, 1077, 1078, 1079, 1080, 1081, 1082, 1083, 1084, 1085, 1086, 1087, 1088, 1089, 1090, 1091, 1092, 1093, 1094, 1095, 1096, 1097, 1098, 1099, 1100, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1108, 1109, 1110, 1111, 1112, 1113, 1114, 1115, 1116, 1117, 1118, 1119, 1120, 1121, 1122, 1123, 1124, 1125, 1126, 1127, 1128, 1129, 1130, 1131, 1132, 1133, 1134, 1135, 1136, 1137, 1138, 1139, 1140, 1141, 1142, 1143, 1144, 1145, 1146, 1147, 1148, 1149, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1162, 1163, 1164, 1165, 1166, 1167, 1168, 1169, 1170, 1171, 1172, 1173, 1174, 1175, 1176, 1177, 1178, 1179, 1180, 1181, 1182, 1183, 1184, 1185, 1186, 1187, 1188, 1189, 1190, 1191, 1192, 1193, 1194, 1195, 1196, 1197, 1198, 1199, 1200, 1201, 1202, 1203, 1204, 1205, 1206, 1207, 1208, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1216, 1217, 1218, 1219, 1220, 1221, 1222, 1223, 1224, 1225, 1226, 1227, 1228, 1229, 1230, 1231, 1232, 1233, 1234, 1235, 1236, 1237, 1238, 1239, 1240, 1241, 1242, 1243, 1244, 1245, 1246, 1247, 1248, 1249, 1250, 1251, 1252, 1253, 1254, 1255, 1256, 1257, 1258, 1259, 1260, 1261, 1262, 1263, 1264, 1265, 1266, 1267, 1268, 1269, 1270, 1271, 1272, 1273, 1274, 1275, 1276, 1277, 1278, 1279, 1280, 1281, 1282, 1283, 1284, 1285, 1286, 1287, 1288, 1289, 1290, 1291, 1292, 1293, 1294, 1295, 1296, 1297, 1298, 1299, 1300, 1301, 1302, 1303, 1304, 1305, 1306, 1307, 1308, 1309, 1310, 1311, 1312, 1313, 1314, 1315, 1316, 1317, 1318, 1319, 1320, 1321, 1322, 1323, 1324, 1325, 1326, 1327, 1328, 1329, 1330, 1331, 1332, 1333, 1334, 1335, 1336, 1337, 1338, 1339, 1340, 1341, 1342, 1343, 1344, 1345, 1346, 1347, 1348, 1349, 1350, 1351, 1352, 1353, 1354, 1355, 1356, 1357, 1358, 1359, 1360, 1361, 1362, 1363, 1364, 1365, 1366, 1367, 1368, 1369, 1370, 1371, 1372, 1373, 1374, 1375, 1376, 1377, 1378, 1379, 1380, 1381, 1382, 1383, 1384, 1385, 1386, 1387, 1388, 1389, 1390, 1391, 1392, 1393, 1394, 1395, 1396, 1397, 1398, 1399, 1400, 1401, 1402, 1403, 1404, 1405, 1406, 1407, 1408, 1409, 1410, 1411, 1412, 1413, 1414, 1415, 1416, 1417, 1418, 1419, 1420, 1421, 1422, 1423, 1424, 1425, 1426, 1427, 1428, 1429, 1430, 1431, 1432, 1433, 1434, 1435, 1436, 1437, 1438, 1439, 1440, 1441, 1442, 1443, 1444, 1445, 1446, 1447, 1448, 1449, 1450, 1451, 1452, 1453, 1454, 1455, 1456, 1457, 1458, 1459, 1460, 1461, 1462, 1463, 1464, 1465, 1466, 1467, 1468, 1469, 1470, 1471, 1472, 1473, 1474, 1475, 1476, 1477, 1478, 1479, 1480, 1481, 1482, 1483, 1484, 1485, 1486, 1487, 1488, 1489, 1490, 1491, 1492, 1493, 1494, 1495, 1496, 1497, 1498, 1499, 1500, 1501, 1502, 1503, 1504, 1505, 1506, 1507, 1508, 1509, 1510, 1511, 1512, 1513, 1514, 1515, 1516, 1517, 1518, 1519, 1520, 1521, 1522, 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1689, 1690, 1691, 1692, 1693, 1694, 1695, 1696, 1697, 1698, 1699, 1700, 1701, 1702, 1703, 1704, 1705, 1706, 1707, 1708, 1709, 1710, 1711, 1712, 1713, 1714, 1715, 1716, 1717, 1718, 1719, 1720, 1721, 1722, 1723, 1724, 1725, 1726, 1727, 1728, 1729, 1730, 1731, 1732, 1733, 1734, 1735, 1736, 1737, 1738, 1739, 1740, 1741, 1742, 1743, 1744, 1745, 1746, 1747, 1748, 1749, 1750, 1751, 1752, 1753, 1754, 1755, 1756, 1757, 1758, 1759, 1760, 1761, 1762, 1763, 1764, 1765, 1766, 1767, 1768, 1769, 1770, 1771, 1772, 1773, 1774, 1775, 1776, 1777, 1778, 1779, 1780, 1781, 1782, 1783, 1784, 1785, 1786, 1787, 1788, 1789, 1790, 1791, 1792, 1793, 1794, 1795, 1796, 1797, 1798, 1799, 1800, 1801, 1802, 1803, 1804, 1805, 1806, 1807, 1808, 1809, 1810, 1811, 1812, 1813, 1814, 1815, 1816, 1817, 1818, 1819, 1820, 1821, 1822, 1823, 1824, 1825, 1826, 1827,


 Date 10/16/02 Technician R. Fedorchuk

## SOUTHWEST SYSTEM STATUS

 SVE Blower (B-201) Operating? (Yes/No)  
 Air Compressor (AC-201) Operating? (Yes/No)  
 Air Sponges Operating? (Yes/No)  
 Heater Operating? (Yes/No)  
 Ventilation Operating? (Yes/No)

 If yes, which valve? (ASV 4, 5, 6, 7)

## OPERATIONAL PARAMETERS

## SVE System

Influent Vacuum (PI-201)	<u>16.5</u>	Inches of H <sub>2</sub> O
Influent Air Temperature (TI-201)	<u>54</u>	°F
Influent Air Flowrate (PI-201)	<u>-</u>	scfm
Ambient Air Flowrate (PI-202)	<u>-</u>	scfm
Particulate Filter Inlet Vacuum (PI-202)	<u>30</u>	Inches of H <sub>2</sub> O
Particulate Filter Outlet Vacuum (PI-203)	<u>35</u>	Inches of H <sub>2</sub> O
Effluent Air Pressure (PI-204)	<u>0</u>	Inches of H <sub>2</sub> O
Effluent Air Flowrate (PI-203)	<u>100</u>	scfm
Effluent Air Temperature (TI-203)	<u>64</u>	°F
Blower Current (B-201)	<u>19</u>	amps
Blower Hours (B-201)	<u>35117</u>	hours

## Air Sparging System

Air Injection Pressure ASV-4 (PI-207)	<u>33</u>	psi
Air Injection Flowrate ASV-4 (PI-204)	<u>200</u>	scfm
Air Injection Pressure ASV-5 (PI-208)	<u>3</u>	psi
Air Injection Flowrate ASV-5 (PI-203)	<u>14</u>	scfm
Air Injection Pressure ASV-6 (PI-209)	<u>30</u>	psi
Air Injection Flowrate ASV-6 (PI-206)	<u>30</u>	scfm
Air Injection Pressure ASV-7 (PI-210)	<u>30</u>	psi
Air Injection Flowrate ASV-7 (PI-207)	<u>15</u>	scfm
Regulator Pressure (PI-206)	<u>30</u>	psi
Compressor Pressure (PI-205)	<u>105</u>	psi
Compressor Air Temperature (TI-203)	<u>105</u>	°F
Compressor Air Temperature on AC-201 display unit	<u>104</u>	°F
Compressor Load Hours AC-201 display unit	<u>10340</u>	hours
Compressor Current (AC-201)	<u>344.00</u>	amps

31664 hdl

## MAINTENANCE PARAMETERS:

 Monthly Effluent Vapor Sample Collected? (Yes/No) (Yes)  
 SVE Knockout Tank Drained? (Yes/No) (No)  
 Blower Disposal Air Filter (PS-201) Cleaned? (Yes/No) (Yes) Changed? (Yes/No) (Yes)  
 Blower In-line Air Filter (PF-201) Cleaned? (Yes/No) (Yes) Changed? (Yes/No) (Yes)  
 Blower Lubricated? (Yes/No) (Yes)  
 Blower Oil Changed? (Yes/No) (Yes)  
 Compressor In-line Air Filter (PF-202) Changed? (Yes/No) (Yes)  
 Compressor Filter Changed? (Yes/No) (Yes)  
 Compressor Oil Changed? (Yes/No) (Yes)

 If yes, date: \_\_\_\_\_  
 Pressure loss across (PI-202 and PI-203) not to exceed 14 inches of H<sub>2</sub>O.  
 Lubricate weekly.  
 Change every 1,000 hours.  
 Changing frequency based on indicators on filter housings.  
 Change every 1,500 hours.  
 Change every 4,000 hours.

## NOTES:

• Flowmeter @ AC-201 (blower) changed out w/ replacement from ASV-3 (blower) (no tune up)

• Install blow-off air switch on inlets to SW I-MU AC units.

2 u u bld in front AC unit.



# KERAMIDA ENVIRONMENTAL, INC.

330 North College Avenue  
Indianapolis, Indiana 46202  
(317) 685-6600 • FAX (317) 685-6610

## OPERATION & MAINTENANCE LOG

Genieie Parts Groundwater Remediation System  
KERAMIDA PROJECT #2335E

Date: 10/9/06 Technician: J. Gasky

### SOUTHWEST SYSTEM STATUS

SVE Blower (B-201) Operating? Yes/No  
Air Compressor (AC-201) Operating? Yes/No  
Air Squeezes Operating? Yes/No  
Heater Operating? Yes/No  
Ventilation Operating? Yes/No

If yes, which valve? (ASV 5, 6, or 7)

### OPERATIONAL PARAMETERS

#### SVE System

Influent Vacuum (PI-201) 16 inches of H<sub>2</sub>O  
Influent Air Temperature (TI-201) 70 °F  
Influent Air Flowrate (FI-201) — scfm  
Ambient Air Flowrate (PI-202) 34 scfm  
Particulate Filter Inlet Vacuum (PI-202) 37 inches of H<sub>2</sub>O  
Particulate Filter Outlet Vacuum (PI-203) 1 inches of H<sub>2</sub>O  
Effluent Air Pressure (PI-204) 1,000 psi  
Effluent Air Flowrate (FI-203) 1,000 scfm  
Effluent Air Temperature (TI-203) 100 °F  
Blower Current (B-201) 19.5 amps  
Blower Hours (B-201) 34956 hours

#### Air Sampling System

Air Injection Pressure ASV-4 (PI-207) 32 psi  
Air Injection Flowrate ASV-4 (FI-204) 65 scfm  
Air Injection Pressure ASV-5 (PI-208) 34 psi  
Air Injection Flowrate ASV-5 (FI-205) — scfm  
Air Injection Pressure ASV-6 (PI-209) 27 psi  
Air Injection Flowrate ASV-6 (FI-206) 10 scfm  
Air Injection Pressure ASV-7 (PI-210) 28 psi  
Air Injection Flowrate ASV-7 (FI-207) 14 scfm  
Regulator Pressure (PI-206) 35 psi  
Compressor Pressure (PI-207) 106 psi  
Compressor Air Temperature (TI-203) 98 °F  
Compressor Air Temperature on AC-201 display unit 190 °F  
Compressor Load Hours AC-201 display unit 10030 hours  
Compressor Current (AC-201) 16.5 amps

Total = 31006  
@ idle

### MAINTENANCE PARAMETERS:

Monthly Effluent Vapor Sample Collected? Yes/No  
SVE Knockout Tanks Drained? Yes/No  
Blower Dilution Air Filter (FS-201) Cleaned? Yes/No Changed? Yes/No  
Blower In-line Air Filter (PF-201) Cleaned? Yes/No Changed? Yes/No  
Blower Lubricated? Yes/No  
Blower Oil Changed? Yes/No  
Compressor In-line Air Filter (PI-202) Changed? Yes/No  
Compressor Filter Changed? Yes/No  
Compressor Oil Changed? Yes/No

Pressure loss across (PI-202 and PI-203) not to exceed 14 inches of H<sub>2</sub>O.  
Lubricate weekly.  
Change every 1,000 hours.  
Changing frequency based on indicators on filter housings.  
Change every 1,500 hours.  
Change every 4,000 hours.

### NOTES:

System Power shut down for unknown reason & returned ~5 seconds later.

# KERAMIDA ENVIRONMENTAL, INC.

330 North College Avenue  
Indianapolis, Indiana 46202  
(317) 685-6600 - FAX (317) 685-6610

## OPERATION & MAINTENANCE LOG

Genieine Parts Groundwater Remediation System  
KERAMIDA PROJECT #2129E

Date 10/3/06 Technician W. Roman

### SOUTHWEST SYSTEM STATUS

SVE Blower (B-201) Operating? (Yes/No)  
Air Compressor (AC-201) Operating? (Yes/No)  
Air Sparges Operating? (Yes/No)  
Heater Operating? (Yes/No)  
Ventilation Operating? (Yes/No)

If yes, which vault? (ASV 4, 5, 6, or 7)

### OPERATIONAL PARAMETERS

#### SVE System

Inductant Vacuum (PI-201)	<u>16</u>	Inches of H2O
Inductant Air Temperature (TI-201)	<u>74</u>	°F
Inductant Air Flowrate (FI-201)	<u>—</u>	scfm
Ambient Air Flowrate (FI-202)	<u>—</u>	scfm
Particulate Filter Inlet Vacuum (PI-202)	<u>35</u>	Inches of H2O
Particulate Filter Outlet Vacuum (PI-203)	<u>37</u>	Inches of H2O
Effluent Air Pressure (PI-204)	<u>1</u>	Inches of H2O (PSI)
Effluent Air Flowrate (FI-203)	<u>1,000</u>	scfm
Effluent Air Temperature (TI-202)	<u>91</u>	°F
Blower Current (B-201)	<u>19</u>	amps
Blower Hours (B-201)	<u>34813</u>	hours

#### Air Sparging System

Air Injection Pressure ASV-4 (PI-207)	<u>33</u>	psi
Air Injection Flowrate ASV-4 (FI-204)	<u>0</u>	scfm
Air Injection Pressure ASV-5 (PI-208)	<u>34</u>	psi
Air Injection Flowrate ASV-5 (FI-205)	<u>—</u>	scfm
Air Injection Pressure ASV-6 (PI-209)	<u>27</u>	psi
Air Injection Flowrate ASV-6 (FI-206)	<u>10</u>	scfm
Air Injection Pressure ASV-7 (PI-210)	<u>29</u>	psi
Air Injection Flowrate ASV-7 (FI-207)	<u>14</u>	scfm
Regulator Pressure (PI-206)	<u>33</u>	psi
Compressor Pressure (PI-205)	<u>95</u>	psi
Compressor Air Temperature (TI-203)	<u>400 1008</u>	°F
Compressor Load Hours AC-201 display unit	<u>188</u>	°F
Compressor Current (AC-201)	<u>9804</u>	amps

707 = 308162

### MAINTENANCE PARAMETERS:

Monthly Effluent Vapor Sample Collected? (Yes/No)  
SVE Knockout Tanks Drained? (Yes/No)  
Blower Dilution Air Filter (FS-201) Cleaned? (Yes/No) Changed? (Yes/No)  
Blower In-line Air Filter (PI-201) Cleaned? (Yes/No) Changed? (Yes/No)  
Blower Lubricated? (Yes/No)  
Blower Oil Changed? (Yes/No)  
Compressor In-line Air Filters (PI-202) Changed? (Yes/No)  
Compressor Filter Changed? (Yes/No)  
Compressor Oil Changed? (Yes/No)

If yes, name \_\_\_\_\_

Pressure loss across (PI-202 and PI-203) not to exceed 14 inches of H<sub>2</sub>O.  
Lubricate weekly.  
Change every 1,000 hours.  
Changing frequency based on indicators on filter housings.  
Change every 1,500 hours.  
Change every 4,000 hours.

### NOTES:



Date: 1/4/07 Technician: W. RUDMAN / S. SULTANO  
Air Sampling Point: (AS-13, 16, 17, 18 & 19) Probes set @ 6 psi with an Air Flow @ 45 cfm

Time	MM - 113				
	Vac. Press. (T <sub>h</sub> 2O)	Headspace (ppm)	DTW (Inch) (Screen @ 4.5' Depth)	DO (%) or mg/L	ORP (%) or mg/L
0 (SVE Only, ASVS ON)	-0.02	0	11.48	7.20	145
0 (SVE-10A13A20A PL, ASVS ON)	Ø	0	11.40	7.19	145
15	-0.01	0.1	10.00	2.00	198
30	-0.02	0.2	10.71	2.31	180
45	Ø	1.1	10.93	4.25	121
60	-0.02	0.2	11.13	4.81	125
90	-0.02	0.1	11.34	6.03	140
SVE - 18					
Time	Vac. Press. (T <sub>h</sub> 2O)	Headspace (ppm)	DTW (Inch) (Screen @ 4.5' Depth)	DO (%) or mg/L	ORP (%) or mg/L
0 (SVE Only, ASVS ON)	-10	NA	9.55	5.63	148
0 (AS OSA PL, ASVS ON)	Ø	Ø	9.41	5.91	140
15	-0.01	Ø	8.96	1.70	121
30	-0.01	Ø	9.72	2.09	118
45	-0.03	Ø	9.52	2.98	130
60	-0.07	Ø	9.48	4.05	130
90	-0.00	Ø	9.61	5.11	141
SVE - 14					
Time	Vac. Press. (T <sub>h</sub> 2O)	Headspace (ppm)	DTW (Inch) (Screen @ 4.5' Depth)	DO (%) or mg/L	ORP (%) or mg/L
0 (SVE Only, ASVS ON)	-10	NA	9.76	8.81	151
0 (SVE-10A13A20A PL, ASVS ON)	-10	NA	9.71	8.63	150
15	-10	NA	8.88	4.15	99
30	-10	NA	8.90	4.20	100
45	-10	NA	9.15	6.22	121
60	-10	NA	9.42	6.96	128
90	-10	NA	9.48	8.07	143
SVE - 12					
Time	Vac. Press. (T <sub>h</sub> 2O)	Headspace (ppm)	DTW (Inch) (Screen @ 4.5' Depth)	DO (%) or mg/L	ORP (%) or mg/L
0 (SVE Only, ASVS ON)	-10	NA	8.94	5.50	151
0 (SVE-10A13A20A PL, ASVS ON)	-10	NA	8.91	4.09	148
15	-10	NA	7.00	4.83	121
30	-10	NA	7.11	5.71	103
45	-10	NA	8.14	7.02	91
60	-10	NA	8.50	7.12	115
90	-10	NA	9.03	7.03	120
SVE - 13					
Time	Vac. Press. (T <sub>h</sub> 2O)	Headspace (ppm)	DTW (Inch) (Screen @ 4.5' Depth)	DO (%) or mg/L	ORP (%) or mg/L
0 (SVE Only, ASVS ON)	-10	NA	6.15	7.67	130
0 (AS OSA PL, ASVS ON)	-0.02	Ø	5.53	7.00	137
15	-0.00	Ø	4.01	4.33	95
30	-0.00	Ø	5.00	4.00	88
45	-0.02	Ø	5.10	4.19	120
60	-0.00	Ø	6.03	4.07	119
90	-0.00	Ø	6.09	5.93	133

# Vapor Discharge Calculation Worksheet

Site: Former Allison Plant #10 - Groundwater Remediation System

Date: 12-18-06

Time: Southwest System with Northwest SVE Wells

Enter Air Flowrate in CFM

1000

Enter Concentrations in PPMV

Vinyl Chloride  
Methylene Chloride  
t-1,2 DCE  
Chloroform  
1,1,1 TCA  
Carbon Tetrachloride  
TCE  
PCE

0  
0  
0  
0  
0  
0  
0.029  
0

Vinyl Chloride  
Methylene Chloride  
t-1,2 DCE  
Chloroform  
1,1,1 TCA  
Carbon Tetrachloride  
TCE  
PCE  
Total Chlorinated HC

Discharge Rate (pounds/day)	Discharge Rate (pounds/hour)
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.01	0.00
0.00	0.00
0.01	0.00
0.00	0.00
0.01	0.00



# Vapor Discharge Calculation Worksheet

Site: Former Allison Plant #10 - Groundwater Remediation System

Date: 11-17-06

Time: Southwest System with Northwest SVE Wells

Enter Air Flowrate in CFM

1000

Enter Concentrations in PPMV

Vinyl Chloride  
Methylene Chloride  
t-1,2 DCE  
Chloroform  
1,1,1 TCA  
Carbon Tetrachloride  
TCE  
PCE

0  
0  
0.03  
0  
0  
0  
0.073  
0

Vinyl Chloride  
Methylene Chloride  
t-1,2 DCE  
Chloroform  
1,1,1 TCA  
Carbon Tetrachloride  
TCE  
PCE  
Total Chlorinated HC

Discharge Rate (pounds/day)	Discharge Rate (pounds/hour)
0.00	0.00
0.00	0.00
0.01	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.04	0.00
0.00	0.00
0.05	0.00

# Vapor Discharge Calculation Worksheet

Site: Former Allison Plant #10 - Groundwater Remediation System

Date: 10-23-06

Time: Southwest System with Northwest SVE Wells

Enter Air Flowrate in CFM

Enter Concentrations in PPMV

Vinyl Chloride  
Methylene Chloride  
t-1,2 DCE  
Chloroform  
1,1,1 TCA  
Carbon Tetrachloride  
TCE  
PCE

0
0
0.02
0
0
0
0.064
0

Vinyl Chloride  
Methylene Chloride  
t-1,2 DCE  
Chloroform  
1,1,1 TCA  
Carbon Tetrachloride  
TCE  
PCE  
Total Chlorinated HC

Discharge Rate (pounds/day)	Discharge Rate (pounds/hour)
0.00	0.00
0.00	0.00
0.01	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.03	0.00
0.00	0.00
0.04	0.00





Analytical Laboratory & Geoprobe Sampling

10/26/06

Mr. Rob Fedorchak  
Keramida Environmental, Inc.  
401 N. College AVE  
Indianapolis, IN 46202

RECEIVED  
OCT 30 2006  
KERAMIDA

Dear Rob:

Enclosed are the sample data report, chain of custody record and quality control data for the sample received on October 24, 2006 for your project, 2829E - Genuine Parts.

Please give me a call if you have questions or I can be of further assistance. Thank you for using Vaportech Services.

Sincerely,

A handwritten signature in dark ink, appearing to read 'D. Masdea', is written over a horizontal line.

David J. Masdea

Enclosure:

# Vaportech Services, Inc.

KER169-60930

Keramida Environmental, Inc.  
Project: 2829E-001 - Genuine Parts

## CONCENTRATIONS IN PPMV

COMPOUND	S.WEST EFFLUENT	POL
1,1 DICHLOROETHYLENE	ND	0.01
METHYLENE CHLORIDE	ND	0.05
TRANS-1,2 DICHLOROETHYLENE	ND	0.01
1,1 DICHLOROETHANE	ND	0.02
CIS-1,2 DICHLOROETHYLENE	0.02	0.01
CHLOROFORM	ND	0.005
1,1,1 TRICHLOROETHANE	ND	0.005
CARBON TETRACHLORIDE	ND	0.005
TRICHLOROETHYLENE	0.064	0.005
TETRACHLOROETHYLENE	ND	0.005
VINYL CHLORIDE	ND	1

FILE NAME	V49A/B3.56A
DATE SAMPLED	10/23/06
DATE RECEIVED	10/24/06
DATE ANALYZED	10/25/06

POL - denotes lower 'Practical Quantitation Limit'  
ND - 'Not Detected' at or above the lower practical quantitation limit

26-Oct-06

Reviewed by: \_\_\_\_\_





# Vaportech Services, Inc.

0169-60830

Keramida Environmental, Inc.  
Project: 2829E-001 - Genuine Parts

## QUALITY CONTROL

### CONTINUING CALIBRATION CHECK

STANDARDS: 21V-R4 VC-1000  
FILE NAME: V49A/B3.54A V49A3.55A  
DATE ANALYZED: 10/25/06

### LABORATORY BLANK RESULTS

BLANK: NZ IN VIAL  
FILE NAME: V49A/B3.53A  
DATE ANALYZED: 10/25/06

COMPOUND	KNOWN (PPMV)	RESULT (PPMV)	PERCENT DIFFERENCE	COMPOUND	BLANK (PPMV)	PRACTICAL QUANTITATION LIMIT (PPMV)
1,1 DICHLOROETHYLENE	1.01	0.97	4.26	1,1 DICHLOROETHYLENE	ND	0.01
METHYLENE CHLORIDE	1.15	1.12	2.43	METHYLENE CHLORIDE	ND	0.05
TRANS-1,2 DICHLOROETHYLENE	1.01	1.04	2.48	TRANS-1,2 DICHLOROETHYLENE	ND	0.01
1,1 DICHLOROETHANE	0.99	1.10	11.01	1,1 DICHLOROETHANE	ND	0.02
CIS-1,2 DICHLOROETHYLENE	1.01	1.05	3.96	CIS-1,2 DICHLOROETHYLENE	ND	0.01
CHLOROFORM	0.820	0.851	3.78	CHLOROFORM	ND	0.005
1,1,1 TRICHLOROETHANE	0.730	0.751	2.88	1,1,1 TRICHLOROETHANE	ND	0.005
CARBON TETRACHLORIDE	0.640	0.684	6.88	CARBON TETRACHLORIDE	ND	0.005
TRICHLOROETHYLENE	0.740	0.773	4.46	TRICHLOROETHYLENE	ND	0.005
TETRACHLOROETHYLENE	0.590	0.626	6.10	TETRACHLOROETHYLENE	ND	0.005
VINYL CHLORIDE	1000	1071	7.10	VINYL CHLORIDE	ND	1

ND - 'Not Detected' at or above the lower practical quantitation limit

26-Oct-06

Reviewed by: 

## CHAIN-OF-CUSTODY RECORD



1158 Pittsburgh Road • Suite 201 • Valencia, PA 16059

Tel: 724-898-2622 • Fax: 724-898-2633

Company Name: ALFAMER Environmental, Inc.

Address: 40 N. College Ave.

City: Indianapolis State: IN Zip: 46202

Proj. Manager: V.R. Reddy

Proj. Location: GP-Fm: Allison Peak (1)

Proj. Number: 2024E-001

Phone #: 317 895 6623 Fax #: 317 895-6610

**Sampler's signature:**

**Analysis Options:**

Enter letters in Requested Analysis columns below.

<b>A</b>	Light Hydrocarbons	<b>F</b>	BTEX
<b>B</b>	Permanent Gases	<b>G</b>	BTEX & C5 - C10
<b>C</b>	Methane	<b>H</b>	TPH (C4 - C12 range)
<b>D</b>	Methane, Ethane, Ethylene	<b>I</b>	Chlorinated Hydrocarbons
<b>E</b>	Hydrogen	<b>J</b>	624 Compound List

**Light Hydrocarbons:** Methane, Ethane, Ethylene, Propane, Propylene, iso-Butane, n-Butane

**Permanent Gases:** Carbon Dioxide, Oxygen, Nitrogen, Methane, Carbon Monoxide

**BTEX:** Benzene, Toluene, Ethyl Benzene, m & p -Xylene, o-Xylene

**C5-C10:** Pentane, Hexane, Heptane, Octane, Nonane, Decane

**Chlorinated HC:** 1,1-DCE, 1,1-DCA, Methylene Chloride, trans-1,2-DCE, cis-1,2-DCE, Chloroform

1,1,1-TCA, Carbon Tetrachloride, Trichloroethylene (TCE), Tetrachloroethylene (PCE)

[illegible]

Results to : R. F. Fortchuk

Invoice to : T. LaRue

Relinquished by : <i>R. S. [Signature]</i>	Company : <i>KEL</i>	Date : <i>10/24/06</i>	Time : <i>4:00</i>	Received by : <i>[Signature]</i>	Company : <i>V. [Signature]</i>	Date : <i>10/24/06</i>	Time : <i>1:00</i>
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :

WHITE COPY : Laboratory to return.

**YELLOW COPY : Laboratory**

**PINK COPY :** Submitter





**Services, Inc.**

Analytical Laboratory & Geoprobe Sampling

11/30/06

Mr. Rob Fedorchak  
Keramida Environmental, Inc.

401 N. College AVE.  
Indianapolis, IN 46202

RECEIVED

DEC 07 2006

KERAMIDA

Dear Rob:

Enclosed are the sample data report, chain of custody record and quality control data for the sample received on November 20, 2006 for your project, 2829E - Genuine Parts.

Please give me a call if you have questions or I can be of further assistance. Thank you for using Vaportech Services.

Sincerely,

David J. Masdeu

Enclosure:

# Vaportech Services, Inc.

MSR170-00993

Keramida Environmental, Inc.  
Project: 2829E - Genuine Parts

## CONCENTRATIONS IN PPMV

COMPOUND	SW SVE EXHAUST	POL
1,1 DICHLOROETHYLENE	ND	0.01
METHYLENE CHLORIDE	ND	0.05
TRANS-1,2 DICHLOROETHYLENE	ND	0.01
1,1 DICHLOROETHANE	ND	0.02
CIS-1,2 DICHLOROETHYLENE	0.03	0.01
CHLOROFORM	ND	0.005
1,1,1 TRICHLOROETHANE	ND	0.005
CARBON TETRACHLORIDE	ND	0.005
TRICHLOROETHYLENE	0.073	0.005
TETRACHLOROETHYLENE	ND	0.005
VINYL CHLORIDE	ND	1

### FILE NAME

V50A/B.09A

### DATE SAMPLED

11/17/06

### DATE RECEIVED

11/20/06

### DATE ANALYZED

11/20/06

PQL - denotes lower 'Practical Quantitation Limit'

ND - 'Not Detected' at or above the lower practical quantitation limit

30-Nov-06

Reviewed by: \_\_\_\_\_





# Vaportech Services, Inc.

REF170-80993

Keramida Environmental, Inc.  
Project: 2829E - Genuine Parts

## QUALITY CONTROL

### CONTINUING CALIBRATION CHECK

STANDARDS: 21V-R4 VC-1000  
FILE NAME: V50A/B.03A V50A.05A  
DATE ANALYZED: 11/20/06

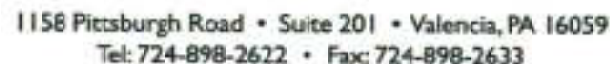
### LABORATORY BLANK RESULTS

BLANK: N2 IN VIAL  
FILE NAME: V50A/B.02A  
DATE ANALYZED: 11/20/06

COMPOUND	KNOWN (PPMV)	RESULT (PPMV)	PERCENT DIFFERENCE	COMPOUND	BLANK (PPMV)	PRACTICAL QUANTITATION LIMIT (PPMV)
1,1 DICHLOROETHYLENE	1.01	0.98	2.57	1,1 DICHLOROETHYLENE	ND	0.01
METHYLENE CHLORIDE	1.15	1.18	2.70	METHYLENE CHLORIDE	ND	0.05
TRANS-1,2 DICHLOROETHYLENE	1.01	1.07	6.04	TRANS-1,2 DICHLOROETHYLENE	ND	0.01
1,1 DICHLOROETHANE	0.99	1.13	14.14	1,1 DICHLOROETHANE	ND	0.02
CIS-1,2 DICHLOROETHYLENE	1.01	1.11	9.70	CIS-1,2 DICHLOROETHYLENE	ND	0.01
CHLOROFORM	0.820	0.892	8.78	CHLOROFORM	ND	0.005
1,1,1 TRICHLOROETHANE	0.730	0.784	7.40	1,1,1 TRICHLOROETHANE	ND	0.005
CARBON TETRACHLORIDE	0.640	0.563	12.03	CARBON TETRACHLORIDE	ND	0.005
TRICHLOROETHYLENE	0.740	0.808	9.19	TRICHLOROETHYLENE	ND	0.005
TETRACHLOROETHYLENE	0.590	0.650	10.17	TETRACHLOROETHYLENE	ND	0.005
VINYL CHLORIDE	1000	1071	7.10	VINYL CHLORIDE	ND	1

ND - 'Not Detected' at or above the lower practical quantitation limit

Company Name: KERAMIDA ENV. INC.  
Address: 401 N. COLLEGE AV.  
City: INDIANAPOLIS State: IN Zip: 46202  
Proj. Manager: JASON CONDRY  
Proj. Location: GP SW SUE EXHAUST  
Proj. Number: 2029E  
Phone #: 317-686-6405 Fax #:

U6 Ph

Enter letters in Requested Analysis columns below.

<b>A</b>	Light Hydrocarbons	<b>F</b>	BTEX
<b>B</b>	Permanent Gases	<b>G</b>	BTEX & C5 - C10
<b>C</b>	Methane	<b>H</b>	TPH (C4 - C12 range)
<b>D</b>	Methane, Ethane, Ethylene	<b>I</b>	Chlorinated Hydrocarbons
<b>E</b>	Hydrogen	<b>J</b>	624 Compound List

<b>Light Hydrocarbons:</b>	Methane, Ethane, Ethylene, Propane, Propylene, iso-Butane, n-Butane
<b>Permanent Gases:</b>	Carbon Dioxide, Oxygen, Nitrogen, Methane, Carbon Monoxide
<b>BTEX:</b>	Benzene, Toluene, Ethyl Benzene, m & p -Xylene, o-Xylene
<b>C5-C10:</b>	Pentane, Hexane, Heptane, Octane, Nonane, Decane
<b>Chlorinated HC:</b>	1,1-DCE, 1,1-DCA, Methylene Chloride, trans-1,2-DCE, cis-1,2-DCE, Chloroform 1,1,1-TCA, Carbon Tetrachloride, Trichloroethylene (TCE), Tetrachloroethylene (PCE)

[illegible]

Invoice to :

Relinquished by : <i>[Signature]</i>	Company : <i>KEI</i>	Date : <i>11/17/06</i>	Time : <i>12:00</i>	Received by : <i>[Signature]</i>	Company : <i>KEI</i>	Date : <i>11/17/06</i>	Time : <i>12:00</i>
Relinquished by : <i>[Signature]</i>	Company : <i>KEI</i>	Date : <i>11/17/06</i>	Time : <i>12:07</i>	Received by : <i>[Signature]</i>	Company : <i>[Signature]</i>	Date : <i>11/20/06</i>	Time : <i>10:00</i>
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :

WHITE COPY : Laboratory to return.

**YELLOW COPY : Laboratory**

**PINK COPY :** Submitter





Analytical Laboratory & Geoprobe Sampling

RECEIVED

JAN 18 2007

KEHAMIDA

12/27/06

Mr. Rob Fedorchak  
Keramida Environmental, Inc.  
401 N. College AVE  
Indianapolis, IN 46202

Dear Rob:

Enclosed are the sample data report, chain of custody record and quality control data for the sample received on December 19, 2006 for your project; 2829E GP-Former Allison.

Please give me a call if you have questions or I can be of further assistance. Thank you for using Vaportech Services.

Sincerely,

A handwritten signature in cursive script, appearing to read "David J. Masdea".

David J. Masdea

Enclosure:

# Vaportech Services, Inc.

KER171-61085

Keramida Environmental, Inc.  
Project: 2829E - Genuine Parts

## CONCENTRATIONS IN PPMV

COMPOUND	SW SVE EXHAUST	PQL
1,1 DICHLOROETHYLENE	ND	0.01
METHYLENE CHLORIDE	ND	0.05
TRANS-1,2 DICHLOROETHYLENE	ND	0.01
1,1 DICHLOROETHANE	ND	0.02
CIS-1,2 DICHLOROETHYLENE	ND	0.01
CHLOROFORM	ND	0.005
1,1,1 TRICHLOROETHANE	ND	0.005
CARBON TETRACHLORIDE	ND	0.005
TRICHLOROETHYLENE	0.029	0.005
TETRACHLOROETHYLENE	ND	0.005
VINYL CHLORIDE	ND	1

### FILE NAME

V50A/B2.42A

### DATE SAMPLED

12/18/06

### DATE RECEIVED

12/19/06

### DATE ANALYZED

12/20/06

PQL - denotes lower 'Practical Quantitation Limit'

ND - 'Not Detected' at or above the lower practical quantitation limit

27-Dec-06

Reviewed by: 



# Vaportech Services, Inc.

KER171-61085

Keramida Environmental, Inc.  
Project: 2829E - Genuine Parts

## QUALITY CONTROL

### CONTINUING CALIBRATION CHECK

STANDARDS: 21V-R4  
FILE NAME: V50A/B2.21A  
DATE ANALYZED: 12/19/06

### LABORATORY BLANK RESULTS

BLANK: N2 IN VIAL  
FILE NAME: V50A/B2.20A  
DATE ANALYZED: 12/19/06

COMPOUND	KNOWN (PPMV)	RESULT (PPMV)	PERCENT DIFFERENCE
1,1 DICHLOROETHYLENE	1.01	0.96	5.35
METHYLENE CHLORIDE	1.15	1.15	0.35
TRANS-1,2 DICHLOROETHYLENE	1.01	1.04	2.77
1,1 DICHLOROETHANE	0.99	1.05	6.46
CIS-1,2 DICHLOROETHYLENE	1.01	1.11	9.70
CHLOROFORM	0.820	0.866	5.61
1,1,1 TRICHLOROETHANE	0.730	0.761	4.25
CARBON TETRACHLORIDE	0.640	0.560	12.50
TRICHLOROETHYLENE	0.740	0.773	4.46
TETRACHLOROETHYLENE	0.590	0.641	8.64

COMPOUND	BLANK (PPMV)	PRACTICAL QUANTITATION LIMIT (PPMV)
1,1 DICHLOROETHYLENE	ND	0.01
METHYLENE CHLORIDE	ND	0.10
TRANS-1,2 DICHLOROETHYLENE	ND	0.01
1,1 DICHLOROETHANE	ND	0.02
CIS-1,2 DICHLOROETHYLENE	ND	0.01
CHLOROFORM	ND	0.005
1,1,1 TRICHLOROETHANE	ND	0.005
CARBON TETRACHLORIDE	ND	0.005
TRICHLOROETHYLENE	ND	0.005
TETRACHLOROETHYLENE	ND	0.005

ND - Not Detected at or above the lower practical quantitation limit

17-Dec-06

Reviewed by: 

# Vaportech Services, Inc.

R1171-61065

Keramida Environmental  
Project: 2829E - Genuine Parts

-- VAPOR SAMPLES --

SAMPLE NAME	CARBON				FILE NAME	DATE COLLECTED	DATE RECEIVED	DATE ANALYZED
	DIOXIDE % by vol	OXYGEN % by vol	NITROGEN % by vol	METHANE % by vol				
SW SVE EFFLUENT	0.04	19.89	76.63	ND	D3984.82A	12/18/2006	12/19/2006	12/28/2006

POL 0.03 0.03 0.10 0.03

POL - denotes lower Practical Quantitation Limit  
ND - denotes 'Not Detected' at or above the lower Practical Quantitation Limit

29-Dec-2006

Reviewed by: 



# Vaportech Services, Inc.

RT171-61005

Keramida Environmental  
Project: 2829E - Genuine Parts

## -- VAPOR SAMPLES -- QUALITY CONTROL

### CONTINUING CALIBRATION CHECK (TCD)

STANDARD: "237"  
FILE NAME: D39B4.71A  
DATE ANALYZED: 12/28/06

COMPOUND	KNOWN (%)	RESULT (%)	PERCENT DIFFERENCE
Carbon Dioxide	15.00	15.48	3.21
Oxygen	7.00	7.15	2.16
Nitrogen	66.49	65.94	0.83
Methane	4.50	4.53	0.64

### LABORATORY BLANK RESULTS (TCD)

BLANK: CARRIER IN LOOP  
FILE NAME: D39B4.70A  
DATE ANALYZED: 12/28/06

COMPOUND	BLANK (%)	PRACTICAL QUANTITATION LIMIT (%)
Carbon Dioxide	ND	0.03
Oxygen	ND	0.03
Nitrogen	ND	0.10
Methane	ND	0.03

- denotes 'Not Detected' at or above the lower Practical Quantitation Limit



## CHAIN-OF-CUSTODY RECORD



1158 Pittsburgh Road • Suite 201 • Valencia, PA 16059  
Tel: 724-898-2622 • Fax: 724-898-2633

Company Name: THE KERNIDA ENVIRONMENTAL  
Address: 401 N. COLLEGE AV.  
City: INDIAN State: IN Zip: 46202  
Proj. Manager: ROB FEDERHACK  
Proj. Location: GP--FORMER ALKSON  
Proj. Number: 2829E  
Phone #: 317-685-6600 Fax #:

**Sampler's signature:**

### Analysis Options:

Enter letters in Requested Analysis columns below.

<b>A</b>	Light Hydrocarbons	<b>F</b>	BTEX
<b>B</b>	Permanent Gases	<b>G</b>	BTEX & C5 - C10
<b>C</b>	Methane	<b>H</b>	TPH (C4 - C12 range)
<b>D</b>	Methane, Ethane, Ethylene	<b>I</b>	Chlorinated Hydrocarbons
<b>E</b>	Hydrogen	<b>J</b>	624 Compound List

<b>Light Hydrocarbons:</b>	Methane, Ethane, Ethylene, Propane, Propylene, iso-Butane, n-Butane
<b>Permanent Gases:</b>	Carbon Dioxide, Oxygen, Nitrogen, Methane, Carbon Monoxide
<b>BTEX:</b>	Benzene, Toluene, Ethyl Benzene, m & p -Xylene, o-Xylene
<b>C5-C10:</b>	Pentane, Hexane, Heptane, Octane, Nonane, Decane
<b>Chlorinated HC:</b>	1,1-DCE, 1,1-DCA, Methylene Chloride, trans-1,2-DCE, cis-1,2-DCE, Chloroform 1,1,1-TCA, Carbon Tetrachloride, Trichloroethylene (TCE), Tetrachloroethylene (PCE)

[illegible]

Results to : ROB FEDORCHAK

**Invoice to :**

Relinquished by : <i>Wes Kados</i>	Company : <i>KEI</i>	Date : <i>12/19/06</i>	Time : <i>1200</i>	Received by : <i>Wes Kados</i>	Company : <i>VAPORTAL</i>	Date : <i>12/19/06</i>	Time : <i>1100</i>
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :

**WHITE COPY :** Laboratory to return.

**YELLOW COPY : Laboratory**

**PINK COPY : Submitter**



# Phytoremediation System Inspection Checklist

Former General Motors Corporation  
Allison Gas Turbine Division Plant 10

Indianapolis, Indiana

IDEM VRP #6991004

KERAMIDA Project No. 2829E

Date of Inspection:

10/23/96

Inspection Frequency:

Monthly

(monthly, quarterly, other)

Inspector:

R. F. [Signature]

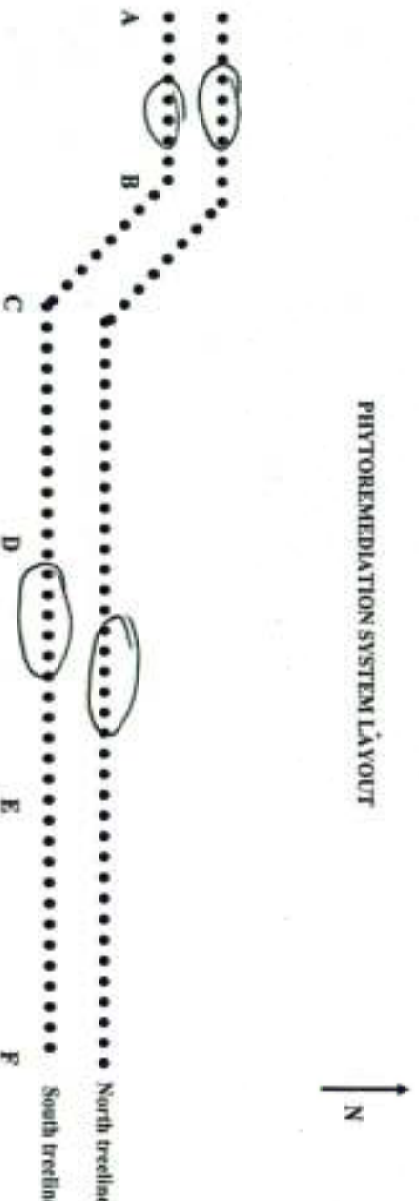
Parameters		
	Trunk, Limbs & Branches <sup>(1)</sup>	Stability <sup>(2)</sup>
Ground <sup>(1)</sup>		

North Treeline Areas:			
A-B	-	RA	RA
B-C	-	RA	RA
C-D	-	-	-
D-E	-	RA	RA
E-F	-	-	-

30-40 trees  
need replanted.

South Treeline Areas:			
A-B	RA	RA	RA
B-C	-	-	-
C-D	-	-	-
D-E	RA	RA	RA
E-F	-	-	-

## PHYTOREMEDIATION SYSTEM LAYOUT



### Notes:

- (1) Ground - check for soil coverage at tree base
  - (2) Trunk, limbs, & branches - check for broken branches, lacerations, pests, or other signs of damage or potential problems with the tree
  - (3) Stability - check for overall stability of the tree
- Place a check mark in each box where no problems are observed.  
Write "RA" where remedial action is needed to address a problem and describe the problem and remedial actions needed on the back of this form.

# KERAMIDA ENVIRONMENTAL, INC. GROUNDWATER SAMPLE INFORMATION SHEET

Facility Name: GP - Former Allison Plant KEI Project #: 2829E-001  
Sample ID: JMJ-173 Well Location:

## Monitoring Well Data

Well Material: (PVC/SS/Teflon)  
Inside Diameter, in. (12# 6)  
Stick up or stick down height \_\_\_\_\_ ft  
Total depth of well (TD) 17.75 ft  
Depth to product \_\_\_\_\_ ft  
Depth to water (DTW) 12.96 ft

## Sample Types (circle all applicable)

Monitoring Well (X)  
Grab Composite (X)  
Split Sample \_\_\_\_\_  
Duplicate (Duplicate ID: \_\_\_\_\_)  
(MS/MSD)  
Other \_\_\_\_\_

## Conventional sampling

←OR→

Height of water column \_\_\_\_\_ ft  
(H = TD - DTW)  
Conversion value (CV) X  
1 Well volume = H X CV = \_\_\_\_\_ gal  
3 Well volumes = \_\_\_\_\_ gal  
Purge method \_\_\_\_\_  
(B = bailer, P = pump) B/P \_\_\_\_\_

## Micropurge sampling

Depth of pump placement (place mid-screen) 14.36 ft  
Bubbles purged from flow cell? (Y) N  
Is drawdown >0.3 feet (Y) N  
Was passive sampling used? (Y) N  
Flowrate = \_\_\_\_\_ ml/min  
ID number from controller console # 165

Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability Range	Result (3 min)	Result (6 min)	Result (9 min)	Result (12 min)	Result (15 min)	Result (18 min)	Result (21 min)
Performed								
Temperature (°C)	+/- 3%	<u>14.33</u>	<u>14.21</u>	<u>14.30</u>				
Spec. Cond (µmhos)	+/- 3%	<u>881</u>	<u>880</u>	<u>875</u>				
D.O. (mg/L)	+/- 10%**	<u>2.33</u>	<u>2.31</u>	<u>2.32</u>				
pH	+/- 0.1	<u>7.35</u>	<u>7.35</u>	<u>7.35</u>				
ORP (mV)	+/- 10 mV**	<u>52</u>	<u>51</u>	<u>51</u>				
Turbidity (NTU)	+/- 10%**							
H <sub>2</sub> S (mg/L)								
Fe <sup>2+</sup> (mg/L)								

Check stability after three readings and every reading thereafter until achieved.  
\*\*Only one of these parameters must reach stability.

## Observations:

Volume of water purged from well: 15 gallons  
Sample Date: 11/21/02 Sample Time: 11:50 (military time)  
Was metals sample filtered prior to preservation? YES (NO) method: 0.45 µm cartridge / other: \_\_\_\_\_  
Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_  
Reaction upon addition of preservatives? YES (NO) explain: \_\_\_\_\_  
Appearance of Water: (Clear/Slightly Turbid/Turbid/Very Turbid)  
Well condition: GOOD

Signature: Wls M Date: 11/21/02



# KERAMIDA ENVIRONMENTAL, INC. GROUNDWATER SAMPLE INFORMATION SHEET

Facility Name: GP - Former Allison Plant  
Sample ID.: MWJ-1103  
KEI Project #: 2829E-001  
Well Location:

## Monitoring Well Data

(PVC/SS/Teflon)  
(1 2 4 6)  
Inside Diameter, in. \_\_\_\_\_ ft  
Stick up or stick down height \_\_\_\_\_ ft  
Total depth of well (TD) 19.60 ft  
Depth to product        ft  
Depth to water (DTW) 11.19 ft

## Sample Types (circle all applicable)

☒ Monitoring Well  
☒ Grab/Composite  
Split Sample  
Duplicate (Duplicate ID: \_\_\_\_\_)  
MS/MSD  
Other \_\_\_\_\_

## Conventional sampling

Height of water column  
(H = TD - DTW) \_\_\_\_\_ ft  
Conversion value (CV) x  
1 Well volume = H x CV = \_\_\_\_\_ gal  
3 Well volumes = \_\_\_\_\_ gal  
Purge method \_\_\_\_\_  
(B = bailer, P = pump) B / P

←OR→

## Micropurge sampling

Depth of pump placement  
(place mid-screen) \_\_\_\_\_ ft  
Bubbles purged from flow cell?  
Is drawdown > 0.3 feet Y  
Was passive sampling used? N  
Flowrate = \_\_\_\_\_ ml/min  
ID number from controller console # 1105

Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability	Result	Result	Result	Result	Result	Result
<b>Performed</b>	Range	(3 min)	(6 min)	(9 min)	(12 min)	(15 min)	(18 min)
Temperature (°C)	+/- 3%	<u>15.65</u>	<u>15.70</u>	<u>15.70</u>			
Spec. Cond (umhos)	+/- 3%	<u>1.05</u>	<u>1.06</u>	<u>1.05</u>			
D.O. (mg/L)	+/- 10%**	<u>3.73</u>	<u>3.79</u>	<u>3.81</u>			
pH	+/- 0.1	<u>6.96</u>	<u>6.97</u>	<u>6.97</u>			
ORP (mV)	+/- 10 mV**	<u>-100</u>	<u>-101</u>	<u>-101</u>			
Turbidity (NTU)	+/- 10%**						
H <sub>2</sub> S (mg/L)							
Fe <sup>2+</sup> (mg/L)							

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

## Observations:

Volume of water purged from well: 215 gallons  
Sample Date: 11/21/06 Sample Time: 11:30 (military time)  
Was metals sample filtered prior to preservation? YES (NO) method: 0.45 µm cartridge / other: \_\_\_\_\_  
Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_  
Reaction upon addition of preservatives? YES (NO) explain: \_\_\_\_\_  
Appearance of Water: (Clear/Slightly Turbid/Turbid/Very Turbid)  
Well condition: Good

Signature: [Signature] Date: 11/21/06

# KERAMIDA ENVIRONMENTAL, INC. GROUNDWATER SAMPLE INFORMATION SHEET

Facility Name: GIP - Former Allison Plant  
Sample ID: 11-1  
KEI Project #: 2829E-001  
Well Location:

## Monitoring Well Data

Well Material (PVC/SS/Teflon)  
Inside Diameter, in. (1.246)  
Stick up or stick down height ft  
Total depth of well (TD) 14.85 ft  
Depth to product — ft  
Depth to water (DTW) 11.35 ft

## Sample Types (circle all applicable)

Monitoring Well  
Grab Composite  
Split Sample  
Duplicate (Duplicate ID:                     )  
MS/MSD  
Other                     

## Conventional sampling

Height of water column (H = TD - DTW) ft  
Conversion value (CV) X  
1 Well volume = H X CV =                      gal  
3 Well volumes =                      gal  
Purge method                       
(B = bailer, P = pump) B/P                     

←OR→

## Micropurge sampling

Depth of pump placement (place mid-screen) 13.10 ft  
Bubbles purged from flow cell? (Y/N)  
Is drawdown >0.3 feet (Y/N)  
Was passive sampling used? (Y/N)  
Flowrate =                      mL/min  
ID number from controller console # 1105

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

## Field Test(s)

Performed	Stability Range	Result (3 min)	Result (6 min)	Result (9 min)	Result (12 min)	Result (15 min)	Result (18 min)	Result (21 min)
Temperature (°C)	+/- 3%	<u>13.70</u>	<u>13.73</u>	<u>13.71</u>				
Spec. Cond (µmhos)	+/- 3%	<u>4.21</u>	<u>4.22</u>	<u>4.20</u>				
D.O. (mg/L)	+/- 10%**	<u>6.03</u>	<u>5.99</u>	<u>5.96</u>				
pH	+/- 0.1	<u>5.72</u>	<u>5.73</u>	<u>5.71</u>				
ORP (mV)	+/- 10 mV**	<u>-36</u>	<u>-36</u>	<u>-36</u>				
Turbidity (NTU)	+/- 10%**							
H <sub>2</sub> S (mg/L)								
Fe <sup>2+</sup> (mg/L)								

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

## Observations:

Volume of water purged from well: 2.10 gallons  
Sample Date: 11/21/06 Sample Time: 11:00 (military time)  
Was metals sample filtered prior to preservation? YES (NO) method: 0.45 µm cartridge / other:                       
Color of water before filtration:                      After filtration:                       
Reaction upon addition of preservatives? YES (NO) explain:                       
Appearance of Water: (Clear/Slightly Turbid/Turbid/Very Turbid)  
Well condition: Good

Signature: MS Date: 11/21/06



# **KERAMIDA ENVIRONMENTAL, INC.** **GROUNDWATER SAMPLE INFORMATION SHEET**

Facility Name: GP - Former Allison Plant	KEI Project #: 2829E-001
Sample ID: IW-2	Well Location:

Monitoring Well Data	
Well Material	(PVC/SS/Teflon)
Inside Diameter, in.	(1.246)
Stick up or stick down height	ft
Total depth of well (TD)	16.91 ft
Depth to product	ft
Depth to water (DTW)	12.52 ft

Sample Types (circle all applicable)	
<input checked="" type="checkbox"/> Monitoring Well	Duplicate ID: _____
<input checked="" type="checkbox"/> Grab/Composite	
<input type="checkbox"/> Split Sample	
<input type="checkbox"/> Duplicate (Duplicate ID: _____)	
MS/MSD	
Other _____	

Conventional sampling	
Height of water column (H = TD - DTW)	ft
Conversion value (CV)*	x
1 Well volume = H x CV	= gal
3 Well volumes =	= gal
Purge method (B = bailer, P = pump)	B / P

Micropurge sampling	
Depth of pump placement (place mid-screen)	14.63 ft
Bubbles purged from flow cell?	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N
Is drawdown > 0.3 feet	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Was passive sampling used?	<input checked="" type="checkbox"/> Y <input type="checkbox"/> N
Flowrate =	ml/min
ID number from controller console	# 165

Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability	Result	Result	Result	Result	Result	Result
<b>Performed</b>	Range	(3 min)	(6 min)	(9 min)	(12 min)	(15 min)	(18 min)
Temperature (°C)	+/- 3%	15.51	15.53	15.48			
Spec. Cond (µmhos)	+/- 3%	.999	.993	.991			
D.O. (mg/L)	+/- 10%**	.14	.14	.18			
pH	+/- 0.1	7.23	7.22	7.21			
ORP (mV)	+/- 10 mV**	-76	-77	-78			
Turbidity (NTU)	+/- 10%**						
H <sub>2</sub> S (mg/L)							
Fe <sup>2+</sup> (mg/L)							

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

## **Observations:**

Volume of water purged from well: 4.15 gallons  
 Sample Date: 11/21/06 Sample Time: 10:15 (military time)  
 Was metals sample filtered prior to preservation? YES ☒ NO ☐ method: 0.45 µm cartridge / other: \_\_\_\_\_  
 Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_  
 Reaction upon addition of preservatives? YES ☐ NO ☒ explain: \_\_\_\_\_  
 Appearance of Water: (Clear/Slightly Turbid/Turbid/Very Turbid)  
 Well condition: Good

Signature: ME ML Date: 11/21/06

# KERAMIDA ENVIRONMENTAL, INC. GROUNDWATER SAMPLE INFORMATION SHEET

Facility Name: GP - Former Allison Plant KEI Project #: 2829E-001  
Sample ID: MWJ-157 Well Location:

## Monitoring Well Data

Well Material PVC/SS/Teflon  
Inside Diameter, in. (12.46)  
Stick up or stick down height \_\_\_\_\_ ft  
Total depth of well (TD) 10.21 ft  
Depth to product \_\_\_\_\_ ft  
Depth to water (DTW) 11.67 ft

## Sample Types (circle all applicable)

Monitoring Well  
Grab/Composite  
Split Sample \_\_\_\_\_  
Duplicate (Duplicate ID: \_\_\_\_\_)  
MS/MSD \_\_\_\_\_  
Other \_\_\_\_\_

## Conventional sampling

←OR→

Height of water column \_\_\_\_\_ ft  
(H = TD - DTW)  
Conversion value (CV) x  
1 Well volume = H x CV = \_\_\_\_\_ gal  
3 Well volumes = \_\_\_\_\_ gal  
Purge method \_\_\_\_\_  
(B = bailer, P = pump) B/P

## Micropurge sampling

Depth of pump placement \_\_\_\_\_ ft  
(place mid-screen) 16.20  
Bubbles purged from flow cell? Y N  
Is drawdown > 0.3 feet Y N  
Was passive sampling used? Y N  
Flowrate = \_\_\_\_\_ ml/min  
ID number from controller console # 165

Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability	Result	Result	Result	Result	Result	Result
<b>Performed</b>	<b>Range</b>	<b>(3 min)</b>	<b>(6 min)</b>	<b>(9 min)</b>	<b>(12 min)</b>	<b>(15 min)</b>	<b>(18 min)</b>
Temperature (°C)	+/- 3%	<u>15.46</u>	<u>15.70</u>	<u>15.70</u>			
Spec. Cond (µmhos)	+/- 3%	<u>789</u>	<u>791</u>	<u>790</u>			
D.O. (mg/L)	+/- 10%**	<u>3.45</u>	<u>3.43</u>	<u>3.39</u>			
pH	+/- 0.1	<u>7.40</u>	<u>7.42</u>	<u>7.41</u>			
ORP (mV)	+/- 10 mV**	<u>240</u>	<u>249</u>	<u>247</u>			
Turbidity (NTU)	+/- 10%**						
H <sub>2</sub> S (mg/L)							
Fe <sup>2+</sup> (mg/L)							

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

## Observations:

Volume of water purged from well: 8.15 gallons  
Sample Date: 11/21/06 Sample Time: 9:40 (military time)  
Was metals sample filtered prior to preservation? YES (NO) method: 0.45 µm cartridge / other: \_\_\_\_\_  
Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_  
Reaction upon addition of preservatives? YES (NO) explain: \_\_\_\_\_  
Appearance of Water: (Clear/Slightly Turbid/Turbid/Very Turbid)  
Well condition: Good

Signature: Mb ML Date: 11/21/06



# **KERAMIDA ENVIRONMENTAL, INC.** **GROUNDWATER SAMPLE INFORMATION SHEET**

Facility Name: GP - Former Allison Plant	KEI Project #: 2829E-001
Sample ID.: MW-151	Well Location:

**Monitoring Well Data**

Well Material: (PVC/SS/Teflon)

Inside Diameter, in. (2.6)

Stick up or stick down height \_\_\_\_\_ ft

Total depth of well (TD) 18.23 ft

Depth to product \_\_\_\_\_ ft

Depth to water (DTW) 13.77 ft

**Sample Types (circle all applicable)**

Monitoring Well

Grab/Composite

Split Sample

Duplicate (Duplicate ID: DGP-01)

MS/MSD \_\_\_\_\_

Other \_\_\_\_\_

**Conventional sampling**

Height of water column \_\_\_\_\_ ft  
(H = TD - DTW)

Conversion value (CV) X

1 Well volume = H X CV = \_\_\_\_\_ gal

3 Well volumes = \_\_\_\_\_ gal

Purge method \_\_\_\_\_

(B = bailer, P = pump) B/P

**Micropurge sampling**

Depth of pump placement \_\_\_\_\_ ft  
(place mid-screen) 16.00

Bubbles purged from flow cell? Y/N

Is drawdown > 0.3 feet Y/N

Was passive sampling used? Y/N

Flowrate = \_\_\_\_\_ ml/min

ID number from controller console # 165

Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability	Result	Result	Result	Result	Result	Result
<b>Performed</b>	<b>Range</b>	<b>(3 min)</b>	<b>(6 min)</b>	<b>(9 min)</b>	<b>(12 min)</b>	<b>(15 min)</b>	<b>(18 min)</b>
Temperature (°C)	+/- 3%	<u>13.73</u>	<u>13.71</u>	<u>14.01</u>			
Spec. Cond (µmhos)	+/- 3%	<u>216</u>	<u>217</u>	<u>216</u>			
D.O. (mg/L)	+/- 10%**	<u>4.26</u>	<u>4.27</u>	<u>4.26</u>			
pH	+/- 0.1	<u>7.25</u>	<u>7.24</u>	<u>7.27</u>			
ORP (mV)	+/- 10 mV**	<u>266</u>	<u>266</u>	<u>266</u>			
Turbidity (NTU)	+/- 10%**						
H <sub>2</sub> S (mg/L)							
Fe <sup>3+</sup> (mg/L)							

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

**Observations:**

Volume of water purged from well: 2.15 gallons

Sample Date: 11/21/06 Sample Time: 9:00 (military time)

Was metals sample filtered prior to preservation? YES (NO) method: 0.45 µm cartridge / other: \_\_\_\_\_

Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_

Reaction upon addition of preservatives? YES (NO) explain: \_\_\_\_\_

Appearance of Water: (Clear Slightly Turbid Turbid Very Turbid)

Well condition: Good

Signature: MB Date: 11/21/06

# KERAMIDA ENVIRONMENTAL, INC. GROUNDWATER SAMPLE INFORMATION SHEET

Facility Name: GP - Former Allison Plant	KEI Project #: 2829E-001
Sample I.D.: MW-154	Well Location:

**Monitoring Well Data**

Well Material: PVC/SS/Teflon

Inside Diameter, in. (2.16)

Stick up or stick down height \_\_\_\_\_ ft

Total depth of well (TD) 20.56 ft

Depth to product \_\_\_\_\_ ft

Depth to water (DTW) 13.61 ft

**Sample Types (circle all applicable)**

Monitoring Well Grab/Composite

Split Sample \_\_\_\_\_

Duplicate (Duplicate ID: \_\_\_\_\_)

MS/MSD \_\_\_\_\_

Other \_\_\_\_\_

**Conventional sampling**

Height of water column (H = TD - DTW) \_\_\_\_\_ ft

Conversion value (CV)<sup>a</sup> x

1 Well volume = H x CV = \_\_\_\_\_ gal

3 Well volumes = \_\_\_\_\_ gal

Purge method \_\_\_\_\_

(B = bailer, P = pump) B/P

**Micropurge sampling**

Depth of pump placement (place mid-screen) 17.06 ft

Bubbles purged from flow cell? Y/N

Is drawdown > 0.3 feet Y/N

Was passive sampling used? Y/N

Flowrate = \_\_\_\_\_ ml/min

ID number from controller console #165

<sup>a</sup>Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability	Result	Result	Result	Result	Result	Result
<b>Performed</b>	<b>Range</b>	<b>(3 min)</b>	<b>(6 min)</b>	<b>(9 min)</b>	<b>(12 min)</b>	<b>(15 min)</b>	<b>(18 min)</b>
Temperature (°C)	+/- 3%	<u>14.47</u>	<u>14.41</u>	<u>14.44</u>	_____	_____	_____
Spec. Cond (µmhos)	+/- 3%	<u>1.21</u>	<u>1.21</u>	<u>1.20</u>	_____	_____	_____
D.O. (mg/L)	+/- 10%**	<u>2.96</u>	<u>2.95</u>	<u>2.95</u>	_____	_____	_____
pH	+/- 0.1	<u>7.28</u>	<u>7.28</u>	<u>7.27</u>	_____	_____	_____
ORP (mV)	+/- 10 mV**	<u>110</u>	<u>111</u>	<u>110</u>	_____	_____	_____
Turbidity (NTU)	+/- 10%**	_____	_____	_____	_____	_____	_____
H <sub>2</sub> S (mg/L)	_____	_____	_____	_____	_____	_____	_____
Fe <sup>3+</sup> (mg/L)	_____	_____	_____	_____	_____	_____	_____

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

**Observations:**

Volume of water purged from well: 1.5 gallons

Sample Date: 12/20/08 Sample Time: 10:00 (military time)

Was metals sample filtered prior to preservation? YES (NO) method: 0.45 µm cartridge / other: \_\_\_\_\_

Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_

Reaction upon addition of preservatives? YES (NO) explain: \_\_\_\_\_

Appearance of Water: (Clear/Slightly Turbid/Turbid/Very Turbid)

Well condition: Good

Signature: Wb Al Date: 12/20/08



**KERAMIDA ENVIRONMENTAL, INC.**  
**GROUNDWATER SAMPLE INFORMATION SHEET**

Facility Name: GP - Former Allison Plant	KEI Project #: 2829E-001
Sample ID: MW1-147AR	Well Location:

**Monitoring Well Data**

Well Material <u>PVC/SS/Teflon</u>	Inside Diameter, in. <u>(2.46)</u>
Stick up or stick down height	ft <u>      </u>
Total depth of well (TD)	ft <u>29.59</u>
Depth to product	ft <u>      </u>
Depth to water (DTW)	ft <u>11.19</u>

**Sample Types (circle all applicable)**

<input checked="" type="radio"/> Monitoring Well <input checked="" type="radio"/> Grab Composite Split Sample Duplicate (Duplicate ID: <u>      </u> ) MS/MSD Other <u>      </u>	Depth of pump placement (place mid-screen) <u>24.59</u> ft Bubbles purged from flow cell? Is drawdown >0.3 feet <u>Y/N</u> Was passive sampling used? <u>Y/N</u> Flowrate = <u>      </u> ml/min ID number from controller console # <u>1165</u>
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**Conventional sampling**

Height of water column (H = TD - DTW)	ft <u>      </u>
Conversion value (CV) *	X <u>      </u>
1 Well volume = H X CV	= gal <u>      </u>
3 Well volumes =	= gal <u>      </u>
Purge method (B = bailer, P = pump)	B / P <u>      </u>

←OR→

**Micropurge sampling**

Check stability after three readings and every reading thereafter until achieved. **Only <u>one</u> of these parameters must reach stability.	*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47
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Field Test(s) Performed	Stability Range	Result (3 min)	Result (6 min)	Result (9 min)	Result (12 min)	Result (15 min)	Result (18 min)	Result (21 min)
Temperature (°C)	+/- 3%	<u>14.45</u>	<u>14.44</u>	<u>14.41</u>	<u>14.43</u>			
Spec. Cond (µmhos)	+/- 3%	<u>.982</u>	<u>.983</u>	<u>.983</u>	<u>.982</u>			
D.O. (mg/L)	+/- 10%**	<u>.84</u>	<u>.94</u>	<u>1.33</u>	<u>1.34</u>			
pH	+/- 0.1	<u>6.91</u>	<u>6.91</u>	<u>6.90</u>	<u>6.89</u>			
ORP (mV)	+/- 10 mV**	<u>-915</u>	<u>-923</u>	<u>-926</u>	<u>-927</u>			
Turbidity (NTU)	+/- 10%**							
H <sub>2</sub> S (mg/L)								
Fe <sup>2+</sup> (mg/L)								

**Observations:**

Volume of water purged from well: ± 1.5 gallons  
 Sample Date: 12/20/16 Sample Time: 10:20 (military time)  
 Was metals sample filtered prior to preservation? YES (NO) method: 0.45 µm cartridge / other:         
 Color of water before filtration:        After filtration:         
 Reaction upon addition of preservatives? YES (NO) explain:         
 Appearance of Water: (Clear/Slightly Turbid/Very Turbid)  
 Well condition: Good

Signature: [Signature] Date: 12/20/16



# KERAMIDA ENVIRONMENTAL, INC. GROUNDWATER SAMPLE INFORMATION SHEET

Facility Name: GP - Former Allison Plant	KEI Project #: 2829E-001
Sample ID: MW-132R	Well Location:

**Monitoring Well Data**

Well Material: (PVC/SS/Teflon) (246)

Inside Diameter, in. \_\_\_\_\_ ft

Stick up or stick down height \_\_\_\_\_ ft

Total depth of well (TD) 19.24 ft

Depth to product \_\_\_\_\_ ft

Depth to water (DTW) 11.24 ft

**Sample Types (circle all applicable)**

Monitoring Well (Gram Composite) ☒

Split Sample \_\_\_\_\_

Duplicate (Duplicate ID: \_\_\_\_\_)

MS/MSD \_\_\_\_\_

Other \_\_\_\_\_

Conventional sampling		Micropurge sampling	
Height of water column (H = TD - DTW) _____ ft	Depth of pump placement (place mid-screen) _____ ft		
Conversion value (CV) <u>x</u>	Bubbles purged from flow cell? <u>Y</u> <u>N</u>		
1 Well volume = H x CV = _____ gal	Is drawdown > 0.3 feet <u>Y</u> <u>N</u>		
3 Well volumes = _____ gal	Was passive sampling used? <u>Y</u> <u>N</u>		
Purge method _____	Flowrate = _____ ml/min		
(B = bailer, P = pump) B / P _____	ID number from controller console # <u>1165</u>		

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s) Performed	Stability Range	Result (3 min)	Result (6 min)	Result (9 min)	Result (12 min)	Result (15 min)	Result (18 min)	Result (21 min)
Temperature (°C)	+/- 3%	13.99	14.03	13.97				
Spec. Cond (µmhos)	+/- 3%	1461	1461	1461				
D.O. (mg/L)	+/- 10%**	2.65	2.63	2.61				
pH	+/- 0.1	6.96	6.96	6.97				
ORP (mV)	+/- 10 mV**	39.5	39.6	39.9				
Turbidity (NTU)	+/- 10%**							
H <sub>2</sub> S (mg/L)								
Fe <sup>3+</sup> (mg/L)								

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

**Observations:**

Volume of water purged from well: 21.0 gallons

Sample Date: 12/20/06 Sample Time: 10:40 (military time)

Was metals sample filtered prior to preservation? YES NO method: 0.45 µm cartridge / other: \_\_\_\_\_

Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_

Reaction upon addition of preservatives? YES NO explain: \_\_\_\_\_

Appearance of Water: (Clear/Slightly Turbid/Turbid/Very Turbid) Very Turbid

Well condition: Good

Signature: MbM Date: 12/20/06



# KERAMIDA ENVIRONMENTAL, INC. GROUNDWATER SAMPLE INFORMATION SHEET

Facility Name: GP - Former Allison Plant  
Sample ID: MW-149E  
KEI Project #: 2829E-001  
Well Location:

## Monitoring Well Data

Well Material: PVC/SS/Teflon  
Inside Diameter, in.: (2 1/2) ft  
Stick up or stick down height: \_\_\_\_\_ ft  
Total depth of well (TD): 25.49 ft  
Depth to product: \_\_\_\_\_ ft  
Depth to water (DTW): 11.17 ft

## Sample Types (circle all applicable)

Monitoring Well  
Grab/Composite  
Split Sample  
Duplicate (Duplicate ID: \_\_\_\_\_)  
MS/MSD  
Other \_\_\_\_\_

## Conventional sampling

Height of water column (H = TD - DTW) \_\_\_\_\_ ft  
Conversion value (CV)\* \_\_\_\_\_ x  
1 Well volume = H x CV \_\_\_\_\_ gal  
3 Well volumes = \_\_\_\_\_ gal  
Purge method: \_\_\_\_\_  
(B = bailer, P = pump) B / P

←OR→

## Micropurge sampling

Depth of pump placement (place mid-screen) \_\_\_\_\_ ft  
Bubbles purged from flow cell? (Y) N  
Is drawdown > 0.3 feet Y  
Was passive sampling used? (Y) N  
Flow rate = \_\_\_\_\_ ml/min  
ID number from controller console # 1165

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability Range	Result (3 min)	Result (6 min)	Result (9 min)	Result (12 min)	Result (15 min)	Result (18 min)	Result (21 min)
<b>Performed</b>								
Temperature (°C)	+/- 3%	<u>13.48</u>	<u>13.49</u>	<u>13.51</u>				
Spec. Cond (µmhos)	+/- 3%	<u>.917</u>	<u>.916</u>	<u>.915</u>				
D.O. (mg/L)	+/- 10%**	<u>4.07</u>	<u>4.10</u>	<u>4.17</u>				
pH	+/- 0.1	<u>6.92</u>	<u>6.92</u>	<u>6.91</u>				
ORP (mV)	+/- 10 mV**	<u>37.7</u>	<u>37.8</u>	<u>38.1</u>				
Turbidity (NTU)	+/- 10%**							
H <sub>2</sub> S (mg/L)								
Fe <sup>3+</sup> (mg/L)								

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

## Observations:

Volume of water purged from well: 21.75 gallons  
Sample Date: 12/20/06 Sample Time: 11:00 (military time)  
Was metals sample filtered prior to preservation? YES (N) method: 0.45 µm cartridge / other: \_\_\_\_\_  
Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_  
Rejection upon addition of preservatives? YES (N) explain: \_\_\_\_\_  
Appearance of Water: (Clear/Slightly Turbid/Turbid/Very Turbid)  
Well condition: Good

Signature: Mb M Date: 12/20/06



# KERAMIDA ENVIRONMENTAL, INC, GROUNDWATER SAMPLE INFORMATION SHEET

Facility Name: GP - Former Allison Plant	KEI Project #: 2829E-001
Sample ID: MW-153	Well Location:

Monitoring Well Data	
Well Material	(PVC/SS/Teflon)
Inside Diameter, in.	(1.246)
Stick up or stick down height	ft
Total depth of well (TD)	20.80 ft
Depth to product	ft
Depth to water (DTW)	12.07 ft

Sample Types (circle all applicable)	
Monitoring Well	<input checked="" type="checkbox"/>
Grab Composite	<input checked="" type="checkbox"/>
Split Sample	<input type="checkbox"/>
Duplicate	<input checked="" type="checkbox"/>
Duplicate ID: DUP-4	
MS/MSD	<input checked="" type="checkbox"/>
Other	

Conventional sampling	
Height of water column (H = TD - DTW)	ft
Conversion value (CV)*	X
1 Well volume = H X CV	= gal
3 Well volumes =	= gal
Purge method (B = bailer, P = pump)	B / P

Micropurge sampling	
Depth of pump placement (place mid-screen)	15.80 ft
Bubbles purged from flow cell?	<input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N
Is drawdown > 0.3 feet	<input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N
Was passive sampling used?	<input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N
Flowrate =	ml/min
ID number from controller console	# 165

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability Range	Result (3 min)	Result (6 min)	Result (9 min)	Result (12 min)	Result (15 min)	Result (18 min)	Result (21 min)
Performed		13.23	13.92	13.90				
Temperature (°C)	+/- 3%	1.282	1.281	1.280				
Spec. Cond (µmhos)	+/- 3%	4.84	4.81	4.78				
D.O. (mg/L)	+/- 10%**	0.90	0.91	0.90				
pH	+/- 0.1	96.7	96.8	96.8				
ORP (mV)	+/- 10 mV**							
Turbidity (NTU)	+/- 10%**							
H <sub>2</sub> S (mg/L)								
Fe <sup>2+</sup> (mg/L)								

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

## Observations:

Volume of water purged from well: 52.0 gallons

Sample Date: 12/20/06 Sample Time: 11:15 (military time)

Was metals sample filtered prior to preservation? YES ☒ NO ☐ method: 0.45 µm cartridge / other: \_\_\_\_\_

Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_ explain: \_\_\_\_\_

Reaction upon addition of preservatives? YES ☒ NO ☐ explain: \_\_\_\_\_

Appearance of Water: (Clear/Slightly Turbid/Partially Very Turbid)

Well condition: Good

Signature: Tab M Date: 12/20/06



# KERAMIDA ENVIRONMENTAL, INC. GROUNDWATER SAMPLE INFORMATION SHEET

Facility Name: GP - Former Allison Plant	KEI Project #: 2829E-001
Sample ID: MYJ-302	Well Location:

## Monitoring Well Data

Well Material	<u>PVC/SS/Teflon</u>
Inside Diameter, in.	<u>(12.46)</u>
Stick up or stick down height	ft
Total depth of well (TD)	<u>55.11</u> ft
Depth to product	ft
Depth to water (DTW)	<u>12.98</u> ft

## Sample Types (circle all applicable)

<input checked="" type="checkbox"/> Monitoring Well
<input checked="" type="checkbox"/> Grab Composite
<input type="checkbox"/> Split Sample
Duplicate (Duplicate ID: _____)
MS/MSD
Other _____

## Conventional sampling

Height of water column (H $\Delta$ TD - DTW)	ft
Conversion value (CV) *	X
1 Well volume = H X CV	= gal
3 Well volumes =	= gal
Purge method	B / R
(B = bailer, P = pump)	

$\Leftarrow$  OR  $\Rightarrow$

## Micropurge sampling

Depth of pump placement (place mid-screen)	<u>50.11</u> ft
Bubbles purged from flow cell?	<u>Y/N</u>
Is drawdown > 0.3 feet	<u>Y/N</u>
Was passive sampling used?	<u>Y/N</u>
Flowrate =	ml/min
ID number from controller console	# <u>145</u>

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s) Performed	Stability Range	Result (3 min)	Result (6 min)	Result (9 min)	Result (12 min)	Result (15 min)	Result (18 min)	Result (21 min)
Temperature (°C)	+/- 3%	<u>13.19</u>	<u>13.20</u>	<u>13.21</u>				
Spec. Cond (µmhos)	+/- 3%	<u>.428</u>	<u>.427</u>	<u>.428</u>				
D.O. (mg/L)	+/- 10%**	<u>.76</u>	<u>.70</u>	<u>.70</u>				
pH	+/- 0.1	<u>7.53</u>	<u>7.53</u>	<u>7.53</u>				
ORP (mV)	+/- 10 mV**	<u>-134</u>	<u>-134</u>	<u>-133</u>				
Turbidity (NTU)	+/- 10%**							
H <sub>2</sub> S (mg/L)								
Fe <sup>2+</sup> (mg/L)								

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

## Observations:

Volume of water purged from well: 2.0 gallons

Sample Date: 12/20/06 Sample Time: 11:30 (military time)

Was metals sample filtered prior to preservation? YES NO method: 0.45 µm cartridge / other: \_\_\_\_\_

Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_

Reaction upon addition of preservatives? YES NO explain: \_\_\_\_\_

Appearance of Water: (Clear/Slightly Turbid/Turbid/cr/Turbid)

Well condition: Good

Signature: MLB ML Date: 12/20/06



# KERAMIDA ENVIRONMENTAL, INC. GROUNDWATER SAMPLE INFORMATION SHEET

Facility Name: GP - Former Allison Plant	KEI Project #: 2829E-001
Sample ID: MW-133R	Well Location:

## Monitoring Well Data

Well Material	<del>PPVC</del> SS/Teflon
Inside Diameter, in.	(1.246)
Stick up or stick down height	ft
Total depth of well (TD)	16.17 ft
Depth to product	ft
Depth to water (DTW)	9.40 ft

## Sample Types (circle all applicable)

<del>Monitoring Well</del>
<del>Grav/Composite</del>
Split Sample
Duplicate (Duplicate ID: _____)
MS/MSD
Other _____

## Conventional sampling

←OR→

Height of water column (H = TD - DTW)	ft
Conversion value (CV)*	X
1 Well volume = H X CV	= gal
3 Well volumes =	= gal
Purge method (B = bailer, P = pump)	B/R

## Micropurge sampling

Depth of pump placement (place mid-screen)	13.00 ft
Bubbles purged from flow cell?	Y/N
Is drawdown >0.3 feet	Y/N
Was passive sampling used?	Y/N
Flowrate =	ml/min
ID number from controller console	# 165

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability	Result	Result	Result	Result	Result
<b>Performed</b>	Range	(3 min)	(6 min)	(9 min)	(12 min)	(15 min)
Temperature (°C)	+/- 3%	15.14	15.18	15.17		
Spec. Cond (µmhos)	+/- 3%	716	717	717		
D.O. (mg/L)	+/- 10%**	5.49	5.50	5.60		
pH	+/- 0.1	7.04	7.04	7.04		
ORP (mV)	+/- 10 mV**	45.9	46.2	46.4		
Turbidity (NTU)	+/- 10%**					
H <sub>2</sub> S (mg/L)						
Fe <sup>3+</sup> (mg/L)						

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

## Observations:

Volume of water purged from well: 1.5 gallons  
 Sample Date: 12/20/06 Sample Time: 11:50 (military time)  
 Was metals sample filtered prior to preservation? YES (NO) method: 0.45 µm cartridge / other: \_\_\_\_\_  
 Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_  
 Reaction upon addition of preservatives? YES (NO) explain: \_\_\_\_\_  
 Appearance of Water: (Clear/Slightly Turbid/Turbid/ery Turbid)  
 Well condition: Good

Signature: Wb ML

Date: 12/20/06



# KERAMIDA ENVIRONMENTAL, INC. GROUNDWATER SAMPLE INFORMATION SHEET

Facility Name: GP - Former Allison Plant	KEI Project #: 2829E-001
Sample ID: MW-145	Well Location:

## Monitoring Well Data

Well Material	(PVC/SS/Retcon)
Inside Diameter, in.	(12" 6)
Stick up or stick down height	ft
Total depth of well (TD)	25.92 ft
Depth to product	ft
Depth to water (DTW)	8.91 ft

## Sample Types (circle all applicable)

Monitoring Well	
Grab/Composite	
Split Sample	
Duplicate (Duplicate ID: _____)	
MS/MSD	
Other _____	

## Conventional sampling

Height of water column (H = TD - DTW)	ft
Conversion value (CV)*	X
1 Well volume = H X CV	= gal
3 Well volumes =	= gal
Purge method	B/R
(B = bailer, P = pump)	

←OR→

## Micropurge sampling

Depth of pump placement (place mid-screen)	20.92 ft
Bubbles purged from flow cell?	Y/N
Is drawdown >0.3 feet	Y/N
Was passive sampling used?	Y/N
Flowrate =	ml/min
ID number from controller console	# 165

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability	Result	Result	Result	Result	Result	Result
<b>Performed</b>	Range	(3 min)	(6 min)	(9 min)	(12 min)	(15 min)	(18 min)
Temperature (°C)	+/- 3%	13.89	13.90	13.90			
Spec. Cond (µmhos)	+/- 3%	.960	.961	.963			
D.O. (mg/L)	+/- 10%**	3.33	3.30	3.42			
pH	+/- 0.1	6.92	6.92	6.92			
ORP (mV)	+/- 10 mV**	-37.4	-37.1	-37.0			
Turbidity (NTU)	+/- 10%**						
H <sub>2</sub> S (mg/L)							
Fe <sup>2+</sup> (mg/L)							

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

## Observations:

Volume of water purged from well: 20 gallons

Sample Date: 12/20/06 Sample Time: 12:45 (military time)

Was metals sample filtered prior to preservation? YES (NO) method: 0.45 µm cartridge / other: \_\_\_\_\_

Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_

Reaction upon addition of preservatives? YES (NO) explain: \_\_\_\_\_

Appearance of Water: (Clear/Slightly Turbid/Turbid/Very Turbid)

Well condition: Good

Signature: MW Date: 12/20/06



# KERAMIDA ENVIRONMENTAL, INC. GROUNDWATER SAMPLE INFORMATION SHEET

Facility Name: GP - Former Allison Plant KEI Project #: 2829E-001  
Sample ID: MW-152 Well Location:

## Monitoring Well Data

Well Material (PVC/SS/Teflon)  
Inside Diameter, in. (2.46) ft  
Stick up or stick down height \_\_\_\_\_ ft  
Total depth of well (TD) 14.85 ft  
Depth to product \_\_\_\_\_ ft  
Depth to water (DTW) 13.84 ft

## Sample Types (circle all applicable)

Monitoring Well (Circled)  
Grab Composite \_\_\_\_\_  
Split Sample \_\_\_\_\_  
Duplicate (Duplicate ID: \_\_\_\_\_)  
MS/MSD \_\_\_\_\_  
Other \_\_\_\_\_

## Conventional sampling

Height of water column \_\_\_\_\_ ft  
(H = TD - DTW)  
Conversion value (CV)\* \_\_\_\_\_  
1 Well volume = H x CV = \_\_\_\_\_ gal  
3 Well volumes = \_\_\_\_\_ gal  
Purge method \_\_\_\_\_  
(B = bailer, P = pump) B / P

←OR→

## Micropurge sampling

Depth of pump placement (place mid-screen) 14.50 ft  
Bubbles purged from flow cell? (Y) N  
Is drawdown >0.3 feet (Y) N  
Was passive sampling used? (Y) N  
Flowrate = \_\_\_\_\_ ml/min  
ID number from controller console # 105

\* Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability Range	Result (3 min)	Result (6 min)	Result (9 min)	Result (12 min)	Result (15 min)	Result (18 min)	Result (21 min)
<b>Performed</b>								
Temperature (°C)	+/- 3%	<u>15.29</u>	<u>15.30</u>	<u>15.33</u>				
Spec. Cond (µmhos)	+/- 3%	<u>328</u>	<u>328</u>	<u>327</u>				
D.O. (mg/L)	+/- 10%**	<u>3.72</u>	<u>3.68</u>	<u>3.65</u>				
pH	+/- 0.1	<u>7.34</u>	<u>7.37</u>	<u>7.34</u>				
ORP (mV)	+/- 10 mV**	<u>68.9</u>	<u>69.0</u>	<u>69.1</u>				
Turbidity (NTU)	+/- 10%**							
H <sub>2</sub> S (mg/L)								
Fe <sup>2+</sup> (mg/L)								

Check stability after three readings and every reading thereafter until achieved.  
\*\*Only one of these parameters must reach stability.

## Observations:

Volume of water purged from well: 1.0 gallons  
Sample Date: 12/20/06 Sample Time: 13:00 (military time)  
Was metals sample filtered prior to preservation? YES (N) method: 0.45 µm cartridge / other: \_\_\_\_\_  
Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_  
Reaction upon addition of preservatives? YES (N) explain: \_\_\_\_\_  
Appearance of Water: (Clear/Slightly Turbid/Very Turbid) (Circled)  
Well condition: GOOD

Signature: M. M. Date: 12/20/06



**KERAMIDA ENVIRONMENTAL, INC.**  
**GROUNDWATER SAMPLE INFORMATION SHEET**

Facility Name: GP - Former Allison Plant	KEI Project #: 2829E-001
Sample ID.: MW-1416	Well Location:

**Monitoring Well Data**

Well Material	(PVC/SS/Teflon)
Inside Diameter, in.	(1.246)
Stick up or stick down height	ft
Total depth of well (TD)	23.41 ft
Depth to product	ft
Depth to water (DTW)	9.56 ft

**Sample Types (circle all applicable)**

Monitoring Well <input checked="" type="checkbox"/> Grab Composite <input type="checkbox"/> Split Sample Duplicate (Duplicate ID: _____) MS/MSD Other: _____	
---	--

**Conventional sampling**

Height of water column (H = TD - DTW)	ft
Conversion value (CV)*	X
1 Well volume = H x CV	= gal
3 Well volumes =	= gal
Purge method (B = bailer, P = pump)	B / P

←OR→

**Micropurge sampling**

Depth of pump placement (place mid-screen)	18.41 ft
Bubbles purged from flow cell?	<input checked="" type="checkbox"/> Y / <input type="checkbox"/> N
Is drawdown > 0.3 feet	<input checked="" type="checkbox"/> Y / <input type="checkbox"/> N
Was passive sampling used?	<input checked="" type="checkbox"/> Y / <input type="checkbox"/> N
Flowrate =	ml/min
ID number from controller console	# 1165

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability Range	Result (3 min)	Result (6 min)	Result (9 min)	Result (12 min)	Result (15 min)	Result (18 min)	Result (21 min)
<b>Performed</b>								
Temperature (°C)	+/- 3%	19.38	19.31	19.39				
Spec. Cond (µmhos)	+/- 3%	0.10	0.10	0.10				
D.O. (mg/L)	+/- 10%**	4.01	4.05	4.08				
pH	+/- 0.1	6.92	6.92	6.91				
ORP (mV)	+/- 10 mV**	28	21	21				
Turbidity (NTU)	+/- 10%**							
H <sub>2</sub> S (mg/L)								
Fe <sup>3+</sup> (mg/L)								

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

**Observations:**

Volume of water purged from well: 2.0 gallons

Sample Date: 12/20/06 Sample Time: 13:20 (military time)

Was metals sample filtered prior to preservation? YES ☒ NO ☐ method: 0.45 µm cartridge / other: \_\_\_\_\_

Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_

Reaction upon addition of preservatives? YES ☒ NO ☐ explain: \_\_\_\_\_

Appearance of Water: (Clear/Slightly Turbid/Turbid/Very Turbid)

Well condition: Good

Signature: Wb Mc Date: 12/20/06



# KERAMIDA ENVIRONMENTAL, INC. GROUNDWATER SAMPLE INFORMATION SHEET

10-1R

Facility Name: GP - Former Allison Plant	KEI Project #: 2829E-001
Sample I.D.: MWL-1018	Well Location:

## Monitoring Well Data

Well Material: PVC/SS/Teflon  
 Inside Diameter, in. (2.46)  
 Stick up or stick down height \_\_\_\_\_ ft  
 Total depth of well (TD) 18.59 ft  
 Depth to product \_\_\_\_\_ ft  
 Depth to water (DTW) 14.43 ft

## Sample Types (circle all applicable)

Monitoring Well Grab Composite  
 Split Sample \_\_\_\_\_  
 Duplicate (Duplicate ID: DSP-02)  
MS/MSD  
 Other \_\_\_\_\_

## Conventional sampling

Height of water column \_\_\_\_\_ ft  
 (H = TD - DTW)  
 Conversion value (CV) X  
 1 Well volume = H X CV = \_\_\_\_\_ gal  
 3 Well volumes = \_\_\_\_\_ gal  
 Purge method \_\_\_\_\_  
 (B = bailer, P = pump) B / P

←OR→

## Micropurge sampling

Depth of pump placement (place mid-screen) 14.50 ft  
 Bubbles purged from flow cell? Y/N  
 Is drawdown >0.3 feet Y/N  
 Was passive sampling used? Y/N  
 Flowrate = \_\_\_\_\_ mL/min  
 ID number from controller console # 145

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability Range	Result (3 min)	Result (6 min)	Result (9 min)	Result (12 min)	Result (15 min)	Result (18 min)	Result (21 min)
<b>Performed</b>								
Temperature (°C)	+/- 3%	<u>14.31</u>	<u>14.33</u>	<u>14.34</u>				
Spec. Cond (µmhos)	+/- 3%	<u>5.21</u>	<u>5.72</u>	<u>5.72</u>				
D.O. (mg/L)	+/- 10%**	<u>5.33</u>	<u>5.32</u>	<u>5.32</u>				
pH	+/- 0.1	<u>7.20</u>	<u>7.24</u>	<u>7.24</u>				
ORP (mV)	+/- 10 mV**	<u>75.1</u>	<u>75.2</u>	<u>75.2</u>				
Turbidity (NTU)	+/- 10%**							
H <sub>2</sub> S (mg/L)								
Fe <sup>3+</sup> (mg/L)								

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

## Observations:

Volume of water purged from well: 2.5 gallons  
 Sample Date: 12/20/00 Sample Time: 13:45 (military time)  
 Was metals sample filtered prior to preservation? YES NO method: 0.45 µm cartridge / other: \_\_\_\_\_  
 Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_  
 Reaction upon addition of preservatives? YES NO explain: \_\_\_\_\_  
 Appearance of Water: (Clear/Slightly Turbid/Turbid/Very Turbid)  
 Well condition: Good

Signature: MW Date: 12/20/00



# KERAMIDA ENVIRONMENTAL, INC. GROUNDWATER SAMPLE INFORMATION SHEET

Facility Name: GP - Former Allison Plant	KEI Project #: 2829E-001
Sample ID: MW-135	Well Location:

Monitoring Well Data	
Well Material	(PVC/SS/Teflon)
Inside Diameter, in.	(12/46)
Stick up or stick down height	ft
Total depth of well (TD)	18.89 ft
Depth to product	ft
Depth to water (DTW)	13.04 ft

Sample Types (circle all applicable)	
Monitoring Well	<input checked="" type="checkbox"/>
Grab Composite	<input checked="" type="checkbox"/>
Split Sample	<input type="checkbox"/>
Duplicate (Duplicate ID: _____)	<input type="checkbox"/>
MS/MSD	<input type="checkbox"/>
Other _____	<input type="checkbox"/>

Conventional sampling	
Height of water column (H = TD - DTW)	ft
Conversion value (CV)*	x
1 Well volume = H x CV	= gal
3 Well volumes =	= gal
Purge method	B / P
(B = bailer, P = pump)	

Micropurge sampling	
Depth of pump placement (place mid-screen)	15.50 ft
Bubbles purged from flow cell?	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N
Is drawdown > 0.3 feet	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N
Was passive sampling used?	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N
Flowrate =	ml/min
ID number from controller console	# 165

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability Range	Result (3 min)	Result (6 min)	Result (9 min)	Result (12 min)	Result (15 min)	Result (18 min)	Result (21 min)
<b>Performed</b>								
Temperature (°C)	+/- 3%	14.97	14.98	15.21				
Spec. Cond (µmhos)	+/- 3%	473	472	472				
D.O. (mg/L)	+/- 10%**	5.57	5.58	5.58				
pH	+/- 0.1	7.16	7.15	7.15				
ORP (mV)	+/- 10 mV**	104.6	104.5	104.6				
Turbidity (NTU)	+/- 10%**							
H <sub>2</sub> S (mg/L)								
Fe <sup>2+</sup> (mg/L)								

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

Observations:

Volume of water purged from well: 1.5 gallons

Sample Date: 12/21/06 Sample Time: 8:30 (military time)

Was metals sample filtered prior to preservation? YES ☒ NO ☐ method: 0.45 µm cartridge / other: \_\_\_\_\_

Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_

Reaction upon addition of preservatives? YES ☒ NO ☐ explain: \_\_\_\_\_

Appearance of Water: (Clear/Slightly Turbid/Turbid/Very Turbid)

Well condition: Good

Signature: [Signature] Date: 12/21/06



# KERAMIDA ENVIRONMENTAL, INC. GROUNDWATER SAMPLE INFORMATION SHEET

Facility Name: GP - Former Allison Plant  
Sample I.D.: MW-150

KEI Project #: 2829E-001  
Well Location:

## Monitoring Well Data

Well Material (PVC/SS/Teflon)  
Inside Diameter, in. (12.46)  
Stick up or stick down height \_\_\_\_\_ ft  
Total depth of well (TD) 18.49 ft  
Depth to product \_\_\_\_\_ ft  
Depth to water (DTW) 12.97 ft

## Sample Types (circle all applicable)

(Monitoring Well)  
(Grab/Composite)  
Split Sample \_\_\_\_\_  
Duplicate (Duplicate ID: \_\_\_\_\_)  
MS/MSD \_\_\_\_\_  
Other \_\_\_\_\_

## Conventional sampling

Height of water column \_\_\_\_\_ ft  
(H = TD - DTW)  
Conversion valve (CV) X  
1 Well volume = H X CV = \_\_\_\_\_ gal  
3 Well volumes = \_\_\_\_\_ gal  
Purge method \_\_\_\_\_  
(B = bailer, P = pump) B/P

←OR→

## Micropurge sampling

Depth of pump placement \_\_\_\_\_ ft  
(place mid-screen) 15.50  
Bubbles purged from flow cell? (Y/N)  
Is drawdown >0.3 feet (Y/N)  
Was passive sampling used? (Y/N)  
Flowrate = \_\_\_\_\_ ml/min  
ID number from controller console # 145

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability Range	Result (3 min)	Result (6 min)	Result (9 min)	Result (12 min)	Result (15 min)	Result (18 min)	Result (21 min)
<b>Performed</b>								
Temperature (°C)	+/- 3%	<u>15.53</u>	<u>15.84</u>	<u>15.54</u>				
Spec. Cond (µmhos)	+/- 3%	<u>.675</u>	<u>.675</u>	<u>.676</u>				
D.O. (mg/L)	+/- 10%**	<u>1.21</u>	<u>1.13</u>	<u>1.14</u>				
pH	+/- 0.1	<u>7.02</u>	<u>7.01</u>	<u>7.01</u>				
ORP (mV)	+/- 10 mV**	<u>119</u>	<u>118.0</u>	<u>118.7</u>				
Turbidity (NTU)	+/- 10%**							
H <sub>2</sub> S (mg/L)								
Fe <sup>3+</sup> (mg/L)								

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

## Observations:

Volume of water purged from well: 21.5 gallons  
Sample Date: 12/21/06 Sample Time: 8:50 (military time)  
Was metals sample filtered prior to preservation? YES (NO) method: 0.45 µm cartridge / other: \_\_\_\_\_  
Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_ explain: \_\_\_\_\_  
Reaction upon addition of preservatives? YES (NO)  
Appearance of Water: (Clear/Slightly Turbid/(Turbid)/Very Turbid)  
Well conditions (Good)

Signature: [Signature]

Date: 12/21/06



# KERAMIDA ENVIRONMENTAL, INC. GROUNDWATER SAMPLE INFORMATION SHEET

Facility Name: GP - Former Allison Plant KEI Project #: 2829E-001  
Sample ID: TW-2 Well Location:

## Monitoring Well Data

Well Material (PVC/SS/Teflon)  
Inside Diameter, in. (1.246)  
Stick up or stick down height ft  
Total depth of well (TD) 14.93 ft  
Depth to product ft  
Depth to water (DTW) 12.62 ft

## Sample Types (circle all applicable)

Monitoring Well  
☒ Grab Composite  
☐ Split Sample  
Duplicate (Duplicate ID: )  
MS/MSD  
Other

## Conventional sampling

Height of water column ft  
(H = TD - DTW)  
Conversion value (CV)\* x  
1 Well volume = H x CV = gal  
3 Well volumes = gal  
Purge method  
(B = bailer, P = pump) B/R

←OR→

## Micropurge sampling

Depth of pump placement (place mid-screen) 14.75 ft  
Bubbles purged from flow cell?  
Is drawdown > 0.3 feet Y/N  
Was passive sampling used? Y/N  
Flowrate = ml/min  
ID number from controller console # 165

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability	Result	Result	Result	Result	Result	Result
<b>Performed</b>	Range	(3 min)	(6 min)	(9 min)	(12 min)	(15 min)	(21 min)
Temperature (°C)	+/- 3%	15.37	15.38	15.35			
Spec. Cond (µmhos)	+/- 3%	0.894	0.895	0.895			
D.O. (mg/L)	+/- 10%**	0.34	0.34	0.33			
pH	+/- 0.1	7.08	7.08	7.08			
ORP (mV)	+/- 10 mV**	-97	-96	-96			
Turbidity (NTU)	+/- 10%**						
H <sub>2</sub> S (mg/L)							
Fe <sup>2+</sup> (mg/L)							

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

## Observations:

Volume of water purged from well: 1.5 gallons  
Sample Date: 12/21/06 Sample Time: 9:10 (military time)  
Was metals sample filtered prior to preservation? YES ☒ NO ☐ method: 0.45 µm cartridge / other:  
Color of water before filtration: After filtration:  
Reaction upon addition of preservatives? YES ☒ NO ☐ explain:  
Appearance of Water: (Clear/Slightly Turbid/Turbid/Very Turbid)  
Well condition: Good

Signature: Mike Mc Date: 12/21/06



# KERAMIDA ENVIRONMENTAL, INC. GROUNDWATER SAMPLE INFORMATION SHEET

Facility Name: GP - Former Allison Plant	KEI Project #: 2829E-001
Sample ID: TW-1	Well Location:

## Monitoring Well Data

Well Material	(PVC/SS/Teflon)
Inside Diameter, in.	(1.246)
Stick up or stick down height	ft
Total depth of well (TD)	14.85 ft
Depth to product	ft
Depth to water (DTW)	11.70 ft

## Sample Types (circle all applicable)

<input checked="" type="checkbox"/> Monitoring Well
<input checked="" type="checkbox"/> Grab/Composite
<input type="checkbox"/> Split Sample
Duplicate (Duplicate ID: _____)
MS/MSD
Other _____

## Conventional sampling

Height of water column (H = TD - DTW)	ft
Conversion value (CV)*	X
1 Well volume = H X CV	= gal
3 Well volumes =	= gal
Purge method	
(B = bailer, P = pump)	B / R

←OR→

## Micropurge sampling

Depth of pump placement (place mid-screen)	13.2 ft
Bubbles purged from flow cell?	<input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N
Is drawdown > 0.3 feet	<input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N
Was passive sampling used?	<input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N
Flowrate =	ml/min
ID number from controller console	# 1165

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability	Result	Result	Result	Result	Result	Result
<b>Performed</b>	Range	(3 min)	(6 min)	(9 min)	(12 min)	(15 min)	(18 min)
Temperature (°C)	+/- 3%	14.70	14.69	14.69			
Spec. Cond (µmhos)	+/- 3%	1.512	1.510	1.507			
D.O. (mg/L)	+/- 10%**	3.25	3.25	3.25			
pH	+/- 0.1	5.88	5.87	5.88			
ORP (mV)	+/- 10 mV**	-49.6	-49.4	-49.2			
Turbidity (NTU)	+/- 10%**						
H <sub>2</sub> S (mg/L)							
Fe <sup>3+</sup> (mg/L)							

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

## Observations:

Volume of water purged from well: 1.5 gallons  
 Sample Date: 12/21/06 Sample Time: 9:30 (military time)  
 Was metals sample filtered prior to preservation? YES (NO) method: 0.45 µm cartridge / other: \_\_\_\_\_  
 Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_ explain: \_\_\_\_\_  
 Reaction upon addition of preservatives? YES (NO)  
 Appearance of Water: (Clear/Slightly Turbid/Very Turbid)  
 Well condition: Good

Signature: Mike M Date: 12/21/06



**KERAMIDA ENVIRONMENTAL, INC.**  
**GROUNDWATER SAMPLE INFORMATION SHEET**

Facility Name: GP - Former Allison Plant	KEI Project #: 2829E-001
Sample ID: <u>MWL #3</u>	Well Location:

Monitoring Well Data	
Well Material	(PVC/SS/Teflon)
Inside Diameter, in.	(1.246)
Stick up or stick down height	ft
Total depth of well (TTD)	<u>19.59</u> ft
Depth to product	ft
Depth to water (DTW)	<u>11.54</u> ft

Sample Types (circle all applicable)	
<input checked="" type="radio"/> Monitoring Well <input checked="" type="radio"/> Grab Composite <input type="radio"/> Split Sample	Duplicate ID: _____
MS/MSD	
Other: _____	

Conventional sampling	
Height of water column (H = TD - DTW)	ft
Conversion value (CV)*	X
1 Well volume = H X CV	= gal
3 Well volumes =	= gal
Purge method	B / P
(B = bailer, P = pump)	

Micropurge sampling	
Depth of pump placement (place mid-screen)	15.50 ft
Bubbles purged from flow cell?	(Y) N
Is drawdown > 0.3 feet	Y (N)
Was passive sampling used?	Y (N)
Flowrate =	ml/min
ID number from controller console	# <u>165</u>

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)		Stability						
Performed	Range	Result (3 min)	Result (6 min)	Result (9 min)	Result (12 min)	Result (15 min)	Result (18 min)	Result (21 min)
Temperature (°C)	+/- 3%	<u>14.38</u>	<u>14.37</u>	<u>14.37</u>				
Spec. Cond (µmhos)	+/- 3%	<u>141</u>	<u>140</u>	<u>159</u>				
D.O. (mg/L)	+/- 10%**	<u>3.46</u>	<u>3.47</u>	<u>3.45</u>				
pH	+/- 0.1	<u>7.00</u>	<u>7.00</u>	<u>7.00</u>				
ORP (mV)	+/- 10 mV**	<u>-59.9</u>	<u>-60</u>	<u>-60</u>				
Turbidity (NTU)	+/- 10%**							
H <sub>2</sub> S (mg/L)								
Fe <sup>3+</sup> (mg/L)								

Check stability after three readings and every reading thereafter until achieved.  
\*\*Only one of these parameters must reach stability.

Observations:  
Volume of water purged from well: 5.75 gallons  
Sample Date: 12/21/06 Sample Time: 9:50 (military time)  
Was metals sample filtered prior to preservation? YES (NO) method: 0.45 µm cartridge / other: \_\_\_\_\_  
Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_  
Reaction upon addition of preservatives? YES (NO) explain: \_\_\_\_\_  
Appearance of Water: (Clear) Slightly Turbid / Very Turbid  
Well condition: Good

Signature: Mb M Date: 12/21/06



**KERAMIDA ENVIRONMENTAL, INC.  
GROUNDWATER SAMPLE INFORMATION SHEET**

Facility Name: GP - Former Allison Plant	KEI Project #: 2829E-001
Sample ID: MW-173	Well Location:

Monitoring Well Data	
Well Material	(PVC/SS/Teflon)
Inside Diameter, in.	(1.246)
Stick up or stick down height	ft
Total depth of well (TD)	<u>17.78</u> ft
Depth to product	ft
Depth to water (DTW)	<u>13.03</u> ft

Sample Types (circle all applicable)	
Monitoring Well	<input checked="" type="checkbox"/>
Grab Composite	<input checked="" type="checkbox"/>
Split Sample	<input type="checkbox"/>
Duplicate (Duplicate ID: _____)	<input type="checkbox"/>
MS/MSD	<input type="checkbox"/>
Other _____	<input type="checkbox"/>

<del>Conventional sampling</del>	
Height of water column (H = TD - DTW)	ft
Conversion value (CV)*	X
1 Well volume = H X CV	= gal
3 Well volumes =	= gal
Purge method (B = bailer, P = pump)	B / P

Micropurge sampling	
Depth of pump placement (place mid-screen)	<u>15.35</u> ft
Bubbles purged from flow cell?	<input checked="" type="checkbox"/> N
Is drawdown > 0.3 feet	<input checked="" type="checkbox"/> Y
Was passive sampling used?	<input checked="" type="checkbox"/> N
Flowrate =	ml/min
ID number from controller console	# <u>1105</u>

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability Range	Result (3 min)	Result (6 min)	Result (9 min)	Result (12 min)	Result (15 min)	Result (18 min)	Result (21 min)
<b>Performed</b>								
Temperature (°C)	+/- 3%	<u>15.12</u>	<u>15.13</u>	<u>15.14</u>				
Spec. Cond (µmhos)	+/- 3%	<u>.471</u>	<u>.471</u>	<u>.471</u>				
D.O. (mg/L)	+/- 10%**	<u>1.52</u>	<u>1.52</u>	<u>1.55</u>				
pH	+/- 0.1	<u>7.16</u>	<u>7.16</u>	<u>7.12</u>				
ORP (mV)	+/- 10 mV**	<u>1.9</u>	<u>1.5</u>	<u>20</u>				
Turbidity (NTU)	+/- 10%**							
H <sub>2</sub> S (mg/L)								
Fe <sup>2+</sup> (mg/L)								

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

Observations:

Volume of water purged from well: 2 1.5 gallons

Sample Date: 12/21/06 Sample Time: 10 : 10 (military time)

Was metals sample filtered prior to preservation? YES ☒ NO ☐ method: 0.45 µm cartridge / other: \_\_\_\_\_

Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_

Reaction upon addition of preservatives? YES ☒ NO ☐ explain: \_\_\_\_\_

Appearance of Water: (Clear/Slightly Turbid/Very Turbid)

Well condition: Good

Signature: W. M.

Date: 12/21/06



# KERAMIDA ENVIRONMENTAL, INC. GROUNDWATER SAMPLE INFORMATION SHEET

Facility Name: GP - Former Allison Plant KEI Project #: 2829E-001  
Sample ID: MW-1516 Well Location:

## Monitoring Well Data

Well Material (PVC/SS/Teflon)  
(1 2 4 6)  
Inside Diameter, in. \_\_\_\_\_ ft  
Stick up or stick down height \_\_\_\_\_ ft  
Total depth of well (TD) 18.81 ft  
Depth to product \_\_\_\_\_ ft  
Depth to water (DTW) 12.09 ft

## Sample Types (circle all applicable)

☒ Monitoring Well  
☒ Grab Composite  
☐ Split Sample  
Duplicate (Duplicate ID: \_\_\_\_\_)  
MS/MSD  
Other \_\_\_\_\_

## Conventional sampling

Height of water column \_\_\_\_\_ ft  
(H = TD - DTW)  
Conversion valve (CV)\* X  
1 Well volume = H x CV = \_\_\_\_\_ gal  
3 Well volumes = \_\_\_\_\_ gal  
Purge method \_\_\_\_\_  
(B = bailer, P = pump) B / P \_\_\_\_\_

←OR→

## Micropurge sampling

Depth of pump placement (place mid-screen) 15.48 ft  
Bubbles purged from flow cell? Y/N  
Is drawdown >0.3 feet Y/N  
Was passive sampling used? Y/N  
Flowrate = \_\_\_\_\_ mL/min  
ID number from controller console # 115

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability Range	Result (3 min)	Result (6 min)	Result (9 min)	Result (12 min)	Result (15 min)	Result (18 min)	Result (21 min)
<b>Performed</b>								
Temperature (°C)	+/- 3%	<u>15.72</u>	<u>15.72</u>	<u>15.71</u>				
Spec. Cond (µmhos)	+/- 3%	<u>1.54</u>	<u>1.54</u>	<u>1.54</u>				
D.O. (mg/L)	+/- 10%**	<u>1.40</u>	<u>1.41</u>	<u>1.41</u>				
pH	+/- 0.1	<u>7.14</u>	<u>7.15</u>	<u>7.10</u>				
ORP (mV)	+/- 10 mV**	<u>31.0</u>	<u>31.1</u>	<u>31.1</u>				
Turbidity (NTU)	+/- 10%**							
H <sub>2</sub> S (mg/L)								
Fe <sup>2+</sup> (mg/L)								

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

## Observations:

Volume of water purged from well: 21.75 gallons  
Sample Date: 12/21/06 Sample Time: 10:30 (military time)  
Was metals sample filtered prior to preservation? YES NO method: 0.45 µm cartridge / other: \_\_\_\_\_  
Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_  
Reaction upon addition of preservatives? YES NO explain: \_\_\_\_\_  
Appearance of Water: (Clear/Slightly Turbid) Very Turbid  
Well condition: Good

Signature: MW MW

Date: 12/21/06



# KERAMIDA ENVIRONMENTAL, INC. GROUNDWATER SAMPLE INFORMATION SHEET

Facility Name: GP - Former Allison Plant	KEI Project #: 2829E-001
Sample I.D.: MWJ-151	Well Location:

**Monitoring Well Data**

Well Material: (PVC/SS/Teflon) (246)

Inside Diameter, in. \_\_\_\_\_ ft

Stick up or stick down height \_\_\_\_\_ ft

Total depth of well (TTD) 18.92 ft

Depth to product \_\_\_\_\_ ft

Depth to water (DTW) 13.95 ft

**Sample Types (circle all applicable)**

(Monitoring Well)  
☒ Grab/Composite  
☐ Split Sample  
 Duplicate (Duplicate ID: \_\_\_\_\_)  
 MS/MSD  
 Other \_\_\_\_\_

**Conventional sampling** ←OR→

Height of water column  
(H = TTD - DTW) \_\_\_\_\_ ft

Conversion value (CV)<sup>\*</sup> \_\_\_\_\_ X

1 Well volume = H X CV = \_\_\_\_\_ gal

3 Well volumes = \_\_\_\_\_ gal

Purge method \_\_\_\_\_

(B = bailer, P = pump) B / P \_\_\_\_\_

**Micropurge sampling**

Depth of pump placement  
(place mid-screen) \_\_\_\_\_ ft

Bubbles purged from flow cell?  
Is drawdown > 0.3 feet \_\_\_\_\_ Y/N

Was passive sampling used? \_\_\_\_\_ Y/N

Flowrate = \_\_\_\_\_ ml/min

ID number from controller console # 165

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability Range	Result (3 min)	Result (6 min)	Result (9 min)	Result (12 min)	Result (15 min)	Result (18 min)	Result (21 min)
<b>Performed</b>								
Temperature (°C)	+/- 3%	13.75	13.76	13.76				
Spec. Cond (µmhos)	+/- 3%	.457	.456	.457				
D.O. (mg/L)	+/- 10%**	3.72	3.72	3.70				
pH	+/- 0.1	6.96	6.92	6.91				
ORP (mV)	+/- 10 mV**	35.8	34.2	34.3				
Turbidity (NTU)	+/- 10%**							
H <sub>2</sub> S (mg/L)								
Fe <sup>2+</sup> (mg/L)								

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

## Observations:

Volume of water purged from well: 41.5 gallons

Sample Date: 12/21/06 Sample Time: 10:50 (military time)

Was metals sample filtered prior to preservation? YES NO method: 0.45 µm cartridge / other: \_\_\_\_\_

Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_

Reaction upon addition of preservatives? YES NO explain: \_\_\_\_\_

Appearance of Water: (Clear/Slightly Turbid/Turbid/Very Turbid)

Well condition: Good

Signature: WLS Date: 12/21/06



**KERAMIDA ENVIRONMENTAL, INC.**  
**GROUNDWATER SAMPLE INFORMATION SHEET**

Facility Name: GP - Former Allison Plant	KEI Project #: 2829E-001
Sample ID.: MW-157	Well Location:

**Monitoring Well Data**

Well Material	<u>PVC/SS/Teflon</u>
Inside Diameter, in.	<u>(1.246)</u>
Stick up or stick down height	<u>ft</u>
Total depth of well (TD)	<u>19.07</u> ft
Depth to product	<u>ft</u>
Depth to water (DTW)	<u>11.81</u> ft

**Sample Types (circle all applicable)**

<input checked="" type="checkbox"/> Monitoring Well
<input checked="" type="checkbox"/> Grab Composite
<input type="checkbox"/> Split Sample
Duplicate (Duplicate ID: _____)
MS/MSD
Other _____

**Conventional sampling**

Height of water column (H = TD - DTW)	<u>ft</u>
Conversion value (CV)*	<u>X</u>
1 Well volume = H x CV	<u>=</u> gal
3 Well volumes =	<u>=</u> gal
Purge method (B = bailer, P = pump)	<u>B / P</u>

←OR→

**Micropurge sampling**

Depth of pump placement (place mid-screen)	<u>16.51</u> ft
Bubbles purged from flow cell?	<u>Y/N</u>
Is drawdown > 0.3 feet	<u>Y/N</u>
Was passive sampling used?	<u>Y/N</u>
Flowrate =	<u>ml/min</u>
ID number from controller console	<u># 165</u>

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s) Performed	Stability Range	Result (3 min)	Result (6 min)	Result (9 min)	Result (12 min)	Result (15 min)	Result (18 min)	Result (21 min)
Temperature (°C)	+/- 3%	<u>12.84</u>	<u>12.57</u>	<u>11.57</u>				
Spec. Cond (umhos)	+/- 3%	<u>632</u>	<u>633</u>	<u>634</u>				
D.O. (mg/L)	+/- 10%**	<u>1.27</u>	<u>1.23</u>	<u>1.19</u>				
pH	+/- 0.1	<u>7.00</u>	<u>7.01</u>	<u>7.01</u>				
ORP (mV)	+/- 10 mV**	<u>604</u>	<u>605</u>	<u>607</u>				
Turbidity (NTU)	+/- 10%**							
H <sub>2</sub> S (mg/L)								
Fe <sup>3+</sup> (mg/L)								

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

**Observations:**

Volume of water purged from well: 21.5 gallons

Sample Date: 12/21/06 Sample Time: 11:10 (military time)

Was metals sample filtered prior to preservation? YES (NO) method: 0.45 µm cartridge / other: \_\_\_\_\_

Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_

Reaction upon addition of preservative? YES (NO) explain: \_\_\_\_\_

Appearance of Water: (Clear/Slightly Turbid/Turbid/Very Turbid)

Well condition: Good

Signature: MW MW

Date: 12/21/06



**KERAMIDA ENVIRONMENTAL, INC.**  
**GROUNDWATER SAMPLE INFORMATION SHEET**

Facility Name: GP - Former Allison Plant	KEI Project #: 2829E-001
Sample ID: <u>MJ-164</u>	Well Location: _____

**Monitoring Well Data**

Well Material	(PVC/SS/Teflon)
Inside Diameter, in.	(1.246)
Stick up or stick down height	ft
Total depth of well (TD)	<u>24.91</u> ft
Depth to product	ft
Depth to water (DTW)	<u>18.80</u> ft

**Sample Types (circle all applicable)**

<input checked="" type="radio"/> Monitoring Well <input type="radio"/> Grab Composite <input type="radio"/> Split Sample Duplicate (Duplicate ID: _____) MS/MSD Other _____	
--	--

**Conventional sampling**

Height of water column (H = TD - DTW)	ft
Conversion value (CV) <sup>*</sup>	X
1 Well volume = H X CV	= gal
3 Well volumes =	= gal
Purge method	B / P
(B = bailer, P = pump)	

←OR→

**Micropurge sampling**

Depth of pump placement (place mid-screen)	21.90 ft
Bubbles purged from flow cell?	(Y/N) <u>Y/N</u>
Is drawdown >0.3 feet	<u>Y/N</u>
Was passive sampling used?	<u>Y/N</u>
Flowrate =	ml/min
ID number from controller console	# <u>165</u>

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability	Result	Result	Result	Result	Result	Result
Performed	Range	(3 min)	(6 min)	(9 min)	(12 min)	(15 min)	(18 min)
Temperature (°C)	+/- 3%	<u>14.56</u>	<u>14.57</u>	<u>14.57</u>			
Spec. Cond (µmhos)	+/- 3%	<u>417</u>	<u>417</u>	<u>417</u>			
D.O. (mg/L)	+/- 10%**	<u>1.54</u>	<u>1.54</u>	<u>1.54</u>			
pH	+/- 0.1	<u>7.08</u>	<u>7.01</u>	<u>7.02</u>			
ORP (mV)	+/- 10 mV**	<u>80.42</u>	<u>81.2</u>	<u>81.1</u>			
Turbidity (NTU)	+/- 10%**						
H <sub>2</sub> S (mg/L)							
Fe <sup>2+</sup> (mg/L)							

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

**Observations:**

Volume of water purged from well: 2.75 gallons

Sample Date: 12/21/06 Sample Time: 11:30 (military time)

Was metals sample filtered prior to preservation? YES NO method: 0.45 µm cartridge / other: \_\_\_\_\_

Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_

Reaction upon addition of preservatives? YES NO explain: \_\_\_\_\_

Appearance of Water: (Clear/Slightly Turbid/Very Turbid) Very Turbid

Well condition: Good

Signature: [Signature] Date: 12/21/06



# KERAMIDA ENVIRONMENTAL, INC.

## GROUNDWATER SAMPLE INFORMATION SHEET

Facility Name: GP - Former Allison Plant	KEI Project #: 2829E-001
Sample ID: <u>1095</u>	Well Location:

Monitoring Well Data	
Well Material	(PVC/SS/Teflon)
Inside Diameter, in.	(2.46)
Stick up or stick down height	ft
Total depth of well (TD)	<u>24.47</u> ft
Depth to product	ft
Depth to water (DTW)	<u>19.82</u> ft

Sample Types (circle all applicable)	
Monitoring Well	<input checked="" type="checkbox"/>
Grab Composite	<input checked="" type="checkbox"/>
Split Sample	<input type="checkbox"/>
Duplicate (Duplicate ID: _____)	
MS/MSD	
Other _____	

Conventional sampling	
Height of water column (M = TD - DTW)	ft
Conversion value (CV) *	x
1 Well volume = M x CV	= gal
3 Well volumes =	= gal
Purge method	B / P
(B = bailer, P = pump)	

Micropurge sampling	
Depth of pump placement (place mid-screen)	<u>21.80</u> ft
Bubbles purged from flow cell?	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N
Is drawdown > 0.3 feet	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N
Was passive sampling used?	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N
Flowrate =	ml/min
ID number from controller console	# <u>1105</u>

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability	Result	Result	Result	Result	Result	Result
Performed	Range	(3 min)	(6 min)	(9 min)	(12 min)	(15 min)	(18 min)
Temperature (°C)	+/- 3%	<u>12.88</u>	<u>12.89</u>	<u>12.97</u>			
Spec. Cond (µmhos)	+/- 3%	<u>1030</u>	<u>1031</u>	<u>1031</u>			
D.O. (mg/L)	+/- 10% **	<u>1.11</u>	<u>1.02</u>	<u>1.02</u>			
pH	+/- 0.1	<u>7.04</u>	<u>7.03</u>	<u>7.03</u>			
ORP (mV)	+/- 10 mV **	<u>-80.5</u>	<u>-79.5</u>	<u>-79.2</u>			
Turbidity (NTU)	+/- 10% **						
H <sub>2</sub> S (mg/L)							
Fe <sup>2+</sup> (mg/L)							

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

Observations:

Volume of water purged from well: 21.5 gallons

Sample Date: 12/21/06 Sample Time: 12:00 (military time)

Was metals sample filtered prior to preservation? YES ☒ NO ☐ method: 0.45 µm cartridge / other: \_\_\_\_\_

Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_

Reaction upon addition of preservatives? YES ☒ NO ☐ explain: \_\_\_\_\_

Appearance of Water: (Clear/Slightly Turbid/Very Turbid)

Well condition: Good

Signature: W. M. Date: 12/21/06



# KERAMIDA ENVIRONMENTAL, INC. GROUNDWATER SAMPLE INFORMATION SHEET

Facility Name: GP - Former Allison Plant KEI Project #: 2829E-001  
Sample ID: MW-49 D Well Location:

## Monitoring Well Data

Well Material (PVC/SS/Teflon)  
Inside Diameter, in. (1.246)  
Stick up or stick down height ft  
Total depth of well (TD) 34.79 ft  
Depth to product ft  
Depth to water (DTW) 19.30 ft

## Sample Types (circle all applicable)

☒ Monitoring Well  
☒ Grab Composite  
☐ Split Sample  
Duplicate (Duplicate ID: )  
MS/MSD  
Other

## Conventional sampling

Height of water column ft  
(H = TD - DTW)  
Conversion value (CV) x  
1 Well volume = H x CV = gal  
3 Well volumes = gal  
Purge method  
(B = bailer, P = pump) B / P

←OR→

## Micropurge sampling

Depth of pump placement (place mid-screen) 31.79 ft  
Bubbles purged from flow cell?  
Is drawdown > 0.3 feet Y/N  
Was passive sampling used? Y/N  
Flowrate = ml/min  
ID number from controller console #

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability	Result	Result	Result	Result	Result
<b>Performed</b>	Range	(3 min)	(6 min)	(9 min)	(12 min)	(15 min)
Temperature (°C)	+/- 3%	13.58	13.59	13.59		
Spec. Cond (µmhos)	+/- 3%	0440	441	0443		
D.O. (mg/L)	+/- 10%**	1.43	1.47	1.47		
pH	+/- 0.1	7.02	7.03	7.02		
ORP (mV)	+/- 10 mV**	-600.1	-65.7	-65.2		
Turbidity (NTU)	+/- 10%**					
H <sub>2</sub> S (mg/L)						
Fe <sup>2+</sup> (mg/L)						

Check stability after three readings and every reading thereafter (until) achieved.

\*\*Only one of these parameters must reach stability.

## Observations:

Volume of water purged from well: 2.0 gallons  
Sample Date: 12/21/06 Sample Time: 12:20 (military time)  
Was metals sample filtered prior to preservation? YES (NO) method: 0.45 µm cartridge / other:  
Color of water before filtration: After filtration:  
Reaction upon addition of preservatives? YES (NO) explain:  
Appearance of Water: (Clear/Slightly Turbid/Turbid/Very Turbid)  
Well condition: Good

Signature: clb/llh Date: 12/21/06



**KERAMIDA ENVIRONMENTAL, INC.**  
**GROUNDWATER SAMPLE INFORMATION SHEET**

Facility Name: GP - Former Allison Plant	KEI Project #: 2829E-001
Sample ID: <u>W115</u>	Well Location: _____

Monitoring Well Data	
Well Material	(PVC/SS/Teflon)
Inside Diameter, in.	(1 2 4 6)
Stick up or stick down height	ft
Total depth of well (TD)	<u>24.70</u> ft
Depth to product	<u>17.90</u> ft
Depth to water (DTW)	ft

Sample Types (circle all applicable)	
Monitoring Well <u>Split Sample</u> Duplicate (Duplicate ID: _____) MS/MSD Other _____	<input checked="" type="radio"/> Split Sample <input type="radio"/> Duplicate (Duplicate ID: _____) <input type="radio"/> MS/MSD <input type="radio"/> Other _____

Conventional sampling	
Height of water column (H = TD - DTW)	ft
Conversion value (CV)*	x
1 Well volume = H x CV	gal
3 Well volumes =	gal
Purge method (B = bailer, P = pump)	B / P

Micropurge sampling	
Depth of pump placement (place mid-screen)	ft
Bubbles purged from flow cell?	<u>Y</u> <input checked="" type="radio"/> N
Is drawdown > 0.3 feet?	<u>Y</u> <input checked="" type="radio"/> N
Was passive sampling used?	<u>Y</u> <input checked="" type="radio"/> N
Flowrate =	ml/min
ID number from controller console	# <u>145</u>

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability	Result	Result	Result	Result	Result	Result
<b>Performed</b>	Range	(3 min)	(6 min)	(9 min)	(12 min)	(15 min)	(18 min)
Temperature (°C)	+/- 3%	<u>14.85</u>	<u>14.87</u>	<u>14.88</u>	_____	_____	_____
Spec. Cond (µmhos)	+/- 3%	<u>1.537</u>	<u>1.538</u>	<u>1.538</u>	_____	_____	_____
D.O. (mg/L)	+/- 10%**	<u>1.02</u>	<u>1.01</u>	<u>0.99</u>	_____	_____	_____
pH	+/- 0.1	<u>6.63</u>	<u>6.63</u>	<u>6.63</u>	_____	_____	_____
ORP (mV)	+/- 10 mV**	<u>59.9</u>	<u>60.0</u>	<u>60.4</u>	_____	_____	_____
Turbidity (NTU)	+/- 10%**	_____	_____	_____	_____	_____	_____
H <sub>2</sub> S (mg/L)	_____	_____	_____	_____	_____	_____	_____
Fe <sup>2+</sup> (mg/L)	_____	_____	_____	_____	_____	_____	_____

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

**Observations:**

Volume of water purged from well: 2.5 gallons

Sample Date: 12/21/06 Sample Time: 12:40 (military time)

Was metals sample filtered prior to preservation? YES ☒ NO ☐ method: 0.45 µm cartridge / other: \_\_\_\_\_

Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_

Reaction upon addition of preservative? YES ☒ NO ☐ explain: \_\_\_\_\_

Appearance of Water: (Clear) Slightly Turbid (every Turbid)

Well condition: Good

Signature: Mike RL Date: 12/21/06



# KERAMIDA ENVIRONMENTAL, INC. GROUNDWATER SAMPLE INFORMATION SHEET

Facility Name: GP - Former Allison Plant KEI Project #: 2829E-001  
Sample ID: PWL-167D Well Location:

## Monitoring Well Data

Well Material (PVC/SS/Teflon)  
Inside Diameter, in. (1 2 4 6)  
Stick up or stick down height ft  
Total depth of well (TD) 32.96 ft  
Depth to product ~ ft  
Depth to water (DTW) 12.97 ft

## Sample Types (circle all applicable)

Monitoring Well  
☒ Grab Composite  
☒ Split Sample  
Duplicate ID: PWL-03  
MS/MSD  
Other

## Conventional sampling

Height of water column ft  
(H = TD - DTW)  
Conversion value (CV)\* X  
1 Well volume = H X CV = gal  
3 Well volumes = gal  
Purge method B / R  
(B = bailer, P = pump)

←OR→

## Micropurge sampling

Depth of pump placement (place mid-screen) 22.96 ft  
Bubbles purged from flow cell? Y/N  
Is drawdown > 0.3 feet Y/N  
Was passive sampling used? Y/N  
Flowrate = ml/min  
ID number from controller console # 165

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability	Result	Result	Result	Result	Result
<b>Performed</b>	Range	(3 min)	(6 min)	(9 min)	(12 min)	(15 min)
Temperature (°C)	+/- 3%	15.121	15.101	15.59		
Spec. Cond (µmhos)	+/- 3%	.555	.556	.549		
D.O. (mg/L)	+/- 10%**	.15	.15	.15		
pH	+/- 0.1	7.40	7.40	7.37		
ORP (mV)	+/- 10 mV**	-104.1	-104.0	-103.8		
Turbidity (NTU)	+/- 10%**					
H <sub>2</sub> S (mg/L)						
Fe <sup>2+</sup> (mg/L)						

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

## Observations:

Volume of water purged from well: 2.0 gallons  
Sample Date: 12/21/06 Sample Time: 13:00 (military time)  
Was metals sample filtered prior to preservation? YES (NO) method: 0.45 µm cartridge / other:  
Color of water before filtration: After filtration:  
Reaction upon addition of preservatives? Y/N explain:  
Appearance of Water: (Clear/Slightly Turbid/Very Turbid)  
Well condition: Good

Signature: [Signature] Date: 12/21/06



# **KERAMIDA ENVIRONMENTAL, INC.** **GROUNDWATER SAMPLE INFORMATION SHEET**

Facility Name: GP - Former Allison Plant	KEI Project #: 2829E-001
Sample I.D.: MW-1055	Well Location:

Monitoring Well Data	
Well Material	(PVC/SS/Teflon)
Inside Diameter, in.	(1.246)
Stick up or stick down height	ft
Total depth of well (TD)	19.86 ft
Depth to product	ft
Depth to water (DTW)	13.94 ft

Sample Types (circle all applicable)	
<input checked="" type="checkbox"/> Monitoring Well	Duplicate ID: _____
<input checked="" type="checkbox"/> Grab Composite	
<input type="checkbox"/> Split Sample	
<input type="checkbox"/> Duplicate (Duplicate ID: _____)	
MS/MSD	
Other	

<del>Conventional sampling</del>	
Height of water column (H = TD - DTW)	ft
Conversion value (CV)*	X
1 Well volume = H X CV	= gal
3 Well volumes =	= gal
Purge method	
(B = bailer, P = pump)	B / P

* Micropurge sampling	
Depth of pump placement (place mid-screen)	16.80 ft
Bubbles purged from flow cell?	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N
Is drawdown > 0.3 feet	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N
Was passive sampling used?	<input checked="" type="checkbox"/> Y <input checked="" type="checkbox"/> N
Flowrate =	ml/min
ID number from controller console	# 105

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability	Result	Result	Result	Result	Result	Result
<b>Performed</b>	<b>Range</b>	<b>(3 min)</b>	<b>(6 min)</b>	<b>(9 min)</b>	<b>(12 min)</b>	<b>(15 min)</b>	<b>(21 min)</b>
Temperature (°C)	+/- 3%	16.85	16.84	16.81			
Spec. Cond (µmhos)	+/- 3%	.410	.410	.417			
D.O. (mg/L)	+/- 10%**	.24	.22	.23			
pH	+/- 0.1	7.39	7.93	7.31			
ORP (mV)	+/- 10 mV**	-94	-94.1	-94.2			
Turbidity (NTU)	+/- 10%**						
H <sub>2</sub> S (mg/L)							
Fe <sup>2+</sup> (mg/L)							

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

## **Observations:**

Volume of water purged from well: 21.5 gallons  
 Sample Date: 12/21/06 Sample Time: 13:20 (military time)  
 Was metals sample filtered prior to preservation? YES ☒ NO ☐  
 Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_  
 Reaction upon addition of preservatives? YES ☒ NO ☐ explain: \_\_\_\_\_  
 Appearance of Water: (Clear) Slightly Turbid Very Turbid  
 Well condition: Good

Signature: Sub M Date: 12/21/06



**KERAMIDA ENVIRONMENTAL, INC.**  
**GROUNDWATER SAMPLE INFORMATION SHEET**

Facility Name: GP - Former Allison Plant	KEI Project #: 2829E-001
Sample ID: <u>MU-145D</u>	Well Location: _____

Monitoring Well Data	
Well Material	(PVC/SS/Teflon)
Inside Diameter, in.	(1 2 4 6) _____
Stick up or stick down height	_____ ft
Total depth of well (TD)	<u>46.14</u> ft
Depth to product	_____ ft
Depth to water (DTW)	<u>13.72</u> ft

Sample Types (circle all applicable)	
<input checked="" type="checkbox"/> Grab <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Split Sample	Duplicate (Duplicate ID: _____) MS/MSD Other _____

Conventional sampling	
Height of water column (H = TD - DTW)	ft _____
Conversion value (CV)*	X _____
1 Well volume = H X CV	= _____ gal
3 Well volumes = _____	= _____ gal
Purge method	_____
(B = bailer, P = pump)	B / P _____

Micropurge sampling	
Depth of pump placement (place mid-screen)	ft <u>46.9</u>
Bubbles purged from flow cell?	<input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N
Is drawdown > 0.3 feet?	<input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N
Was passive sampling used?	<input checked="" type="checkbox"/> Y / <input checked="" type="checkbox"/> N
Flowrate = _____	_____ ml/min
ID number from controller console	# <u>145</u>

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability	Result	Result	Result	Result	Result	Result	Result
Performed	Range	(3 min)	(6 min)	(9 min)	(12 min)	(15 min)	(18 min)	(21 min)
Temperature (°C)	+/- 3%	<u>16.38</u>	<u>16.24</u>	<u>16.34</u>				
Spec. Cond (µmhos)	+/- 3%	<u>4635</u>	<u>4655</u>	<u>4635</u>				
D.O. (mg/L)	+/- 10%**	<u>1.00</u>	<u>1.94</u>	<u>1.98</u>				
pH	+/- 0.1	<u>7.00</u>	<u>7.07</u>	<u>7.07</u>				
ORP (mV)	+/- 10 mV**	<u>-80.0</u>	<u>-80.7</u>	<u>-80.6</u>				
Turbidity (NTU)	+/- 10%**							
H <sub>2</sub> S (mg/L)								
Fe <sup>3+</sup> (mg/L)								

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

**Observations:**

Volume of water purged from well: 20 gallons

Sample Date: 12/21/04 Sample Time: 13:40 (military time)

Was metals sample filtered prior to preservation? YES ☒ NO ☐ method: 0.45 µm cartridge / other: \_\_\_\_\_

Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_

Reaction upon addition of preservatives? YES ☒ NO ☐ explain: \_\_\_\_\_

Appearance of Water: (Clear/Slightly Turbid/Turbid/Very Turbid)

Well condition: Good

Signature: [Signature] Date: 12/21/04



# **KERAMIDA ENVIRONMENTAL, INC.** **GROUNDWATER SAMPLE INFORMATION SHEET**

Facility Name: GP - Former Allison Plant	KEI Project #: 2829E-001
Sample ID: MM-164b	Well Location:

**Monitoring Well Data**

Well Material (PVC/SS/Teflon) \_\_\_\_\_  
 (1 2 4 6)  
 Inside Diameter, in. \_\_\_\_\_ ft  
 Stick up or stick down height \_\_\_\_\_ ft  
 Total depth of well (TD) 49.75 ft  
 Depth to product \_\_\_\_\_ ft  
 Depth to water (DTW) 14.34 ft

**Sample Types (circle all applicable)**

☒ Monitoring Well  
☒ Grab Composite  
☐ Split Sample  
 Duplicate (Duplicate ID: \_\_\_\_\_)  
 MS/MSD \_\_\_\_\_  
 Other \_\_\_\_\_

**Conventional sampling**

Height of water column \_\_\_\_\_ ft  
 (H = TD - DTW)  
 Conversion valve (CV)\* X  
 1 Well volume = H X CV = \_\_\_\_\_ gal  
 3 Well volumes = \_\_\_\_\_ gal  
 Purge method \_\_\_\_\_  
 (B = bailer, P = pump) B / P \_\_\_\_\_

**Micropurge sampling**

Depth of pump placement (place mid-screen) \_\_\_\_\_ ft  
 Bubbles purged from flow cell? (Y) N  
 Is drawdown >0.3 feet (Y) (N)  
 Was passive sampling used? (Y) (N)  
 Flowrate = \_\_\_\_\_ mL/min  
 ID number from controller console # 165

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s) Performed	Stability Range	Result (3 min)	Result (6 min)	Result (9 min)	Result (12 min)	Result (15 min)	Result (18 min)	Result (21 min)
Temperature (°C)	+/- 3%	<u>15.33</u>	<u>15.33</u>	<u>15.31</u>				
Spec. Cond (µmhos)	+/- 3%	<u>644</u>	<u>644</u>	<u>643</u>				
D.O. (mg/L)	+/- 10%**	<u>3.0</u>	<u>3.0</u>	<u>3.0</u>				
pH	+/- 0.1	<u>7.13</u>	<u>7.07</u>	<u>7.06</u>				
ORP (mV)	+/- 10 mV**	<u>-945</u>	<u>-947</u>	<u>-948</u>				
Turbidity (NTU)	+/- 10%**							
H <sub>2</sub> S (mg/L)								
Fe <sup>3+</sup> (mg/L)								

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

**Observations:**  
 Volume of water purged from well: 25 gallons  
 Sample Date: 12/21/06 Sample Time: 14:00 (military time)  
 Was metals sample filtered prior to preservation? YES (NO) method: 0.45 µm cartridge / other: \_\_\_\_\_  
 Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_ explain: \_\_\_\_\_  
 Reaction upon addition of preservatives? YES (NO)  
 Appearance of Water: (Clear) (Slightly Turbid) / Very Turbid)  
 Well condition: (Good)

Signature: CEB-M Date: 12/21/06



**KERAMIDA ENVIRONMENTAL, INC.**  
**GROUNDWATER SAMPLE INFORMATION SHEET**

Facility Name: GP - Former Allison Plant	KEI Project #: 2829E-001
Sample ID: MM-1665	Well Location:

Monitoring Well Data	
Well Material	(PVC/SS/Teflon)
Inside Diameter, in.	(1.246)
Stick up or stick down height	ft
Total depth of well (TD)	19.34 ft
Depth to product	ft
Depth to water (DTW)	14.51 ft

Sample Types (circle all applicable)	
Monitoring Well	(circle)
Grain Composite	
Split Sample	
Duplicate (Duplicate ID: _____)	
MS/MSD	
Other _____	

Conventional sampling	
Height of water column (H = TD - DTW)	ft
Conversion value (CV)*	X
1 Well volume = H X CV	= gal
3 Well volumes =	= gal
Purge method	B / R
(B = bailer, P = pump)	

Micropurge sampling	
Depth of pump placement (place mid-screen)	16.25 ft
Bubbles purged from flow cell?	(circle) Y / N
Is drawdown > 0.3 feet	(circle) Y / N
Was passive sampling used?	(circle) Y / N
Flowrate =	ml/min
ID number from controller console	#

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability	Result	Result	Result	Result	Result
<b>Performed</b>	Range	(3 min)	(6 min)	(9 min)	(12 min)	(15 min)
Temperature (°C)	+/- 3%	16.31	16.30	16.30		
Spec. Cond (µmhos)	+/- 3%	411	1610	1609		
D.O. (mg/L)	+/- 10%**	143	164	149		
pH	+/- 0.1	7.23	7.03	7.03		
ORP (mV)	+/- 10 mV**	245	244	250		
Turbidity (NTU)	+/- 10%**					
H <sub>2</sub> S (mg/L)						
Fe <sup>2+</sup> (mg/L)						

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

**Observations:**

Volume of water purged from well: 1.5 gallons  
 Sample Date: 12/21/06 Sample Time: 14:20 (military time)  
 Was metals sample filtered prior to preservation? YES (NO) method: 0.45 µm cartridge / other: \_\_\_\_\_  
 Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_  
 Reaction upon addition of preservatives? YES (NO) explain: \_\_\_\_\_  
 Appearance of Water: (Clear/Slightly Turbid/Turbid/Very Turbid)  
 Well condition: Good

Signature: MM Date: 12/21/06



# KERAMIDA ENVIRONMENTAL, INC. GROUNDWATER SAMPLE INFORMATION SHEET

Facility Name: GP - Former Allison Plant 10      KEI Project #: 2829K001/003  
Sample I.D.: M14-160      Well Location:

## Monitoring Well Data

Well Material (PVC/SS/Teflon)  
Inside Diameter, in. (12.46)  
Stick up or stick down height ft  
Total depth of well (TD) 12.0 ft  
Depth to product ft  
Depth to water (DTW) 1.91 ft

## Sample Types (circle all applicable)

Monitoring Well (Grav/Composite)  
Split Sample  
Duplicate (Duplicate ID: )  
MS/MSD  
Other

## Conventional sampling

Height of water column (H = TD - DTW) 10.09 ft  
Conversion value (CV)\*  $\frac{10.09}{1.47} = 6.86$   
1 Well volume = H x CV = 1.61 gal  
3 Well volumes = 4.84 gal  
Purge method (B = bailer, P = pump) (B) P

←OK→

## Micropurge sampling

Depth of pump placement (place mid-screen) ft  
Bubbles purged from flow cell? Y / N  
Is drawdown > 0.3 feet Y / N  
Was passive sampling used? Y / N  
Flowrate = ml/min  
ID number from controller console #

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s) Performed	Stability Range	Result (3 min)	Result (6 min)	Result (9 min)	Result (12 min)	Result (15 min)	Result (18 min)	Result (21 min)
Temperature (°C)	+/- 3%							
Spec. Cond (µmhos)	+/- 3%							
D.O. (mg/L)	+/- 10%**							
pH	+/- 0.1							
ORP (mV)	+/- 10 mV**							
Turbidity (NTU)	+/- 10%**							
H <sub>2</sub> S (mg/L)								
Fe <sup>2+</sup> (mg/L)								

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

## Observations:

Volume of water purged from well: 5 gallons  
Sample Date: 1/19/07      Sample Time: 10:10 (military time)  
Was metals sample filtered prior to preservation? YES (NO) method: 0.45 µm cartridge / other:  
Color of water before filtration:      After filtration:      explain:  
Reaction upon addition of preservatives? YES (NO)  
Appearance of Water: (Clear/Slightly Turbid/Turbid/Very Turbid)  
Well condition: (Good)

Signature: Mike Miller      Date: 1/19/07

# **KERAMIDA ENVIRONMENTAL, INC.** **GROUNDWATER SAMPLE INFORMATION SHEET**

Facility Name: GP - Former Allison Plant 10	KEI Project #: 2829E-001003
Sample ID.: MW-161	Well Location:

## **Monitoring Well Data**

Well Material	(PVC/SS/Teflon) (P246)
Inside Diameter, in.	ft
Stick up or stick down height	ft
Total depth of well (TD)	12.96 ft
Depth to product	ft
Depth to water (DTW)	3.58 ft

## **Sample Types (circle all applicable)**

Monitoring Well	<input checked="" type="checkbox"/>
Grab Composite	<input checked="" type="checkbox"/>
Split Sample	<input type="checkbox"/>
Duplicate (Duplicate ID: DV2-61)	<input checked="" type="checkbox"/>
MS/MSD	<input type="checkbox"/>
Other	<input type="checkbox"/>

## **Conventional sampling**

Height of water column (H = TD - DTW)	9.38 ft
Conversion value (CV)*	x .16
1 Well volume = H x CV	= 1.50 gal
3 Well volumes =	= 4.50 gal
Purge method (B = bailer, P = pump)	(B) P

←OR→

## **Micropurge sampling**

Depth of pump placement (place mid-screen)	ft
Bubbles purged from flow cell?	Y / N
Is drawdown > 0.3 feet	Y / N
Was passive sampling used?	Y / N
Flowrate =	ml/min
ID number from controller console	#

\*Conversion values (gal/ft): 1" dia = 0.04, 2" dia = 0.16, 4" dia = 0.65, 6" dia = 1.47

Field Test(s)	Stability Range	Result (3 min)	Result (6 min)	Result (9 min)	Result (12 min)	Result (15 min)	Result (18 min)	Result (21 min)
<b>Performed</b>								
Temperature (°C)	+/- 3%							
Spec. Cond (µmhos)	+/- 3%							
D.O. (mg/L)	+/- 10%**							
pH	+/- 0.1							
ORP (mV)	+/- 10 mV**							
Turbidity (NTU)	+/- 10%**							
H <sub>2</sub> S (mg/L)								
Fe <sup>2+</sup> (mg/L)								

Check stability after three readings and every reading thereafter until achieved.

\*\*Only one of these parameters must reach stability.

## **Observations:**

Volume of water purged from well: 4.50 gallons

Sample Date: 1/19/07 Sample Time: 10:30 (military time)

Was metals sample filtered prior to preservation? YES ☒ NO ☐ method: 0.45 µm cartridge / other: \_\_\_\_\_

Color of water before filtration: \_\_\_\_\_ After filtration: \_\_\_\_\_

Reaction upon addition of preservatives? YES ☒ NO ☐ explain: \_\_\_\_\_

Appearance of Water: (Clear/Slightly Turbid/Turbid/Very Turbid)

Well condition: Good

Signature: WLE Date: 1/19/07





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IDEM VRP #091004  
KERAMIDA Project No. 2829E